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Computer Weekly
Thursday, March 26, 1981

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NEWS BRIEF

GTE tries out Prestel rival

AMERICA'S second biggest telephone company, GTE, is expected to launch a viewdata terminal with a nine-inch black-and-white screen and an alphanumeric keyboard before the end of the year. The terminal will also have a built-in autodialler and modem, like British viewdata terminals, and cost under $500.

DG lays off 230

DATA General has laid off 230 of the 900 employees at its factory at Westbrook, Maine, because of a decline in demand for the peripherals and sub-assemblies built there. Data General shipments in the US have been hit by what the firm's president calls "economic uncertainties", but he thinks that they will pick up later this year.

NMW's profits up

CHESHIRE-based stockbroking computer bureau NMW has announced pretax profits of £505,000 on a turnover of £2,118,156. That is 25% up on last year's £363,000. The company has declared a 50% increase in dividend, to 15p per share. There will also be a four way share split and a one for two bonus issue of its shares. The company's price touched £11.50 (£1 at par) on Monday prior to any wide circulation of the results.

Last version

THE Last One, the micro development system from DJ"AI" Systems, is to be translated to CP/M and other environments by Crystal Electronics of Devon. The Last One's promoter Scotty Bambury says Crystal will be giving the package "the protection factor" and the cosmetic features needed to market it commercially.

CII-HB denies IBM-compatible marketing link

Acsys picks Ireland for principal plant

by Keith Jones

IRELAND has been earmarked by Gene Amdahl's new company, Acsys, as the site for the main world-wide manufacturing centre of the IBM-compatible system currently under development at Acsys headquarters in San Jose, California.

At the same time Acsys hopes to set up some kind of joint marketing venture in Europe with CII-Honeywell Bull for IBM-compatible machines.

An Acsys spokesman said that preliminary talks had already taken place with the Industrial Development Authority in Dublin and that Acsys president Cliff Madden was about to return there to submit formal proposals.

The spokesman said that the Acsys plant would be located in the Dublin area, and would probably be unique among US-owned computer plants in Ireland in being the main manufacturing facility instead of an offshoot of the US manufacturing operation.

Reasons for choosing Ireland included the generous tax incentives, the good experience of Amdahl Corp, Gene Amdahl's former company, with its Irish plant, and the fact that Acsys expected half its total market to be outside the US. Shipments would start in mid-1984.

The Acsys spokesman said that talks were also to be held with CII-Honeywell Bull about a joint operation being set up to market IBM-compatible Acsys machines in Europe in addition to CII-HB's own product line. CII-HB put an estimated $10 million into Acsys a few weeks ago in return for rights to the advanced semiconductor technology being developed by the California firm.

But a CII-HB spokesman in Paris denied that there were plans for a joint operation to sell Acsys machines in Europe.

Meanwhile, Gene Amdahl's son Carlton has joined Acsys as the company's vice-chairman. He has resigned his post as executive vice-president of advanced technology at Magnuson Systems, the neighbouring company which builds IBM-compatible machines that compete directly with IBM's 4300 series medium-scale mainframes.

Carl Amdahl helped design the Magnuson M80 family and will maintain links with the firm as a member of its board. Gene Amdahl is chairman of Acsys.

Viewdata standards agreement soon

by Donald Kennett

VIEWDATA researchers in the UK, France and West Germany have stepped up the pace of work towards a set of unified European standards, aiming to reach agreement in time for them to be ratified by the June annual meeting of CEPT, the association of European PTTs.

Informal discussions held last week came close to bringing agreement between the three teams and this week the videotex (viewdata and teletext) group of CEPT is continuing the discussions.

The West Germans are running viewdata trials based on Prestel, but for the full service they plan to start in 1983 they are determined to make use of the advantages of the French method whereby colour and other attributes of each character are described in a 16-bit character code, as well as the advantages of the British method where a control code is used to describe changes to a block of 8-bit characters.

Geoff Giles, the UK representative in CEPT discussions on viewdata, said: "We are not quite agreed on the method to combine the requirements of all three systems, but we are unanimously agreed that we shall do it.

"We want a truly unified system giving upward compatibility with Prestel."

Mullard's LSI chip aimed at US market

by Donald Kennett

MULLARD, the Southampton-based semiconductor manufacturer, is preparing a big push into the US market with a UK-made LSI chip designed to cut the development costs of the next generation of viewdata terminal equipment.

The chip, called Lucy (or more formally the SAA 5070), saves between 19 and 29 small and medium scale integrated circuits in the line coupling, data acquisition and overall control sections of a viewdata terminal, as well as simplifying signal filtering and reducing the software needed to drive it.

Lucy is used in the Tantel and Radofin viewdata adapters recently launched in the UK, but it can be used equally well with the French and Canadian viewdata systems, which use different character coding schemes.

It also caters for different telephone dialling signals and different conventions in using parity bits for error control.

The big US push is to start at the National Association of Broadcasters show in Las Vegas next month and about ten US companies are said to be interested in the device already, on top of the UK companies which are evaluating samples.

Production volumes are expected to build up throughout this year.

The Times is computerised

THE much-troubled new technology at the Times has finally entered service, after three years of disputes and technical difficulties. Sections of the newspaper such as the broadcasting guide and the property column are now being produced by photocomposition, after an extremely rapid changeover ordered by new owner Rupert Murdoch.

The system, comprising four Hewlett-Packard minis, a Metroset composer, and software from SDC in the US, was originally to have been used first to set the Times supplements, but printing of those was taken outside London within a week of the take-over.

Privacy law confusion

● From front page

A survey of CSA members' business has shown, however, that such threats in many sectors are not high.

Legislation would be introduced, Whitelaw said, "when an opportunity offers." This led Patricia Hewitt, of the National Council of Civil Liberties to say she was "extremely unhappy" that no date had been given.

The NCCL would be pressing for a Parliamentary debate to force the Home Office to reveal its timetable, she said; she also thought that practical considerations would eventually force the government to set up a DPA.

Codes of practice would have to be followed by data users, Whitelaw said, and "appropriate sanctions" would be provided to ensure compliance, without saying where the codes would come from or how the sanctions would work.

"There will also be provision," he said, "for securing access to information by data subjects as appropriate."

Implementation of the register would be progressive.

Whitelaw added that the government intended to sign the Council of Europe convention "at an early date".

Sir Norman Lindop, whose committee reported on the subject in 1978, described the statement as "better than nothing," but said he was "rather dubious" about the lack of an authority, especially when citizens needed help in dealing with public bodies. The vague provision of subject access [illegible] "when appropriate" he described as a "soporific phrase".

LINDOP . . . "Better than nothing."

On whether the Whitelaw scheme would meet the requirements of the Council of Europe and other foreign countries, Lindop said, "I would be surprised if the hardliners on cross-border data flow would be satisfied."

The British Computer Society is working on a scheme which the society would administer itself for certifying systems as sound for privacy purposes. Some talks have taken place with the CSA, the NCC, and the IDPM about co-operation, but it is unlikely the other bodies will agree to taking part in a scheme dominated by the BCS.

Former BCS president Gerry Fisher described the Whitelaw statement as a "damp squib" which would not protect anyone from the danger of police and security files. "The Civil Service and the establishment have won the battle," he said. "We have to work to see they don't win the war."

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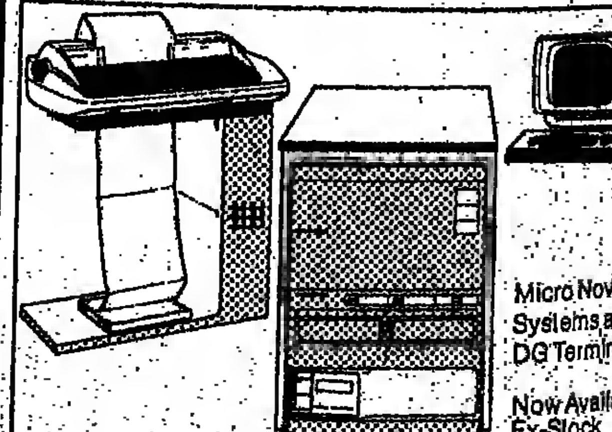

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FINAPL package is the prize at failed software house

Bidders rush in as FARS up for grabs

by Claire Gooding

MANCHESTER-based FARS Computer Services has gone into receivership and bidders are scrambling to buy its lucrative financial planning package FINAPL which was a promising part of FARS' business.

Leading APL bureaux IP Sharp and APL*PLUS could both be interested, since both offer FINAPL as a bureau service. There is already competition to employ the team behind FINAPL, led by its author Geoff Kemmish who was one of FARS' directors.

The product appears to be up for sale as a unit, and speculation is that it might be sold outright to one of its present users.

A spokesman for STSC-owned APL*PLUS told Computer Weekly, "We have FINAPL on our time sharing service and officially we will continue to support our customers to the extent necessary.

"We are interested in whatever affects our customers. If the company's gone down the pan there will be people and products on the market. We'll be looking at whatever looks like a bargain."

FARS has been seeking extra backing for some time, and has notched up significant sales with FINAPL, including ICL and British Leyland. The business was split between the products side, spearheaded by FINAPL, and a software house which dealt with bespoke and tailored software, together accounting for 33 employees.

FARS managing director David Spencer confirmed that three bidders were chasing the FINAPL business but was unable to reveal any facts and figures behind the company's demise.

"There are a lot of rumours going round which are without foundation" he said. "We are negotiating, and we hope to be able to re-establish a service similar to FARS, but the matter rests with the receiver. The company went into receivership on March 20. At that time we still had a substantial workload."

The reason for the demise of a company which had a healthy order book and a product as promising as FINAPL surprised some observers. But there was almost certainly a cash flow problem, not helped by the recession and the initial burden carried by the company due to its tie-up with the Nottingham consultancy Gamma, which crashed with heavy debts a year ago.

A UK company, Triangle Digital Services, has entered the speech synthesis market by designing and manufacturing its own speech chip. Managing director Peter Rush is taking on Japanese and US competition from the giants of the electronics industry including National Semiconductor, Texas Instruments and General Instrument Microelectronics in a market predicted to be worth $3 billion by the end of the decade. *Full story Micro News, page 7.*

NEWS BRIEF

Buyer for Nascom

ANOTHER buyer has been found for the assets of microcomputer company Nascom, but no papers have yet been signed according to receivers W. H. Cork Gully. The company went into receivership a year ago.

The first buyer, chosen last October, was Peter Matthews, who is director of a communications company, Altteck Technology Initiatives. That deal, however, fell through. The new deal is expected to be completed next week.

Judge's order

US-BASED computer lessor OPM which filed for bankruptcy under Chapter 11 of the US bankruptcy laws last month and which is the subject of several law-suits, has been placed under the direction of a trustee by a US bankruptcy judge. Normally a firm in Chapter 11 can operate under its own management.

Services growth

TOTAL billings by the UK computer services industry rose by about 27% to more than £140 million between the third quarter of 1979 and the same period last year according to statistics from the Department of Industry. Employment increased from 23,333 personnel in the 1979 third quarter to 25,974 in 1980.

Top-end launch

SEEN by Northern Telecom as the saviour of its financial fortunes in the computer business the 400 Series distributed processing line has been enhanced with a new top-end machine, the 585, and with a new Northern Telecom word processing package called Omniword I.

DoI pulls banks into micros

by Rory Johnston

MONEY from banks to fund new projects involving microprocessors should become easier to obtain, following the setting up of a joint appraisal scheme by the Department of Industry and 16 City institutions.

As an extension to the Microprocessor Applications Project, when a venture needs more money than the government can provide the Department will approach banks to suggest further investment and make available its technical expertise on the idea.

Funding under MAP is at present only up to 25% of development cost, and stops at product launch. Announcing the Joint Appraisal Scheme, Information Technology Minister Kenneth Baker said between 20-30 MAP projects had failed to come to fruition for lack of further money, and this new arrangement should overcome that problem.

A spokesman for the Midland Bank, one of those participating, said that the DoI's assessment of a project would be "absolutely invaluable" in helping a bank make its decision.

Banks would only be approached, and technical assessment divulged, with the agreement of the company concerned. The assessment of the company's financial position by DoI accountants would not be disclosed.

Baker added: "It is staggering how little micro technology is now used in British industry." A publicity drive is being started with a special exhibition train which will tour the country, to be seen both by local businessmen and schoolchildren, to improve awareness.

Meanwhile, microcomputer manufacturers are to have a meeting with Baker on April 14, following vigorous protests over their exclusion from the government's shortlist of suppliers to the Civil Service. One of them, Alan Clark of Haywood, has written to Mrs Thatcher and persuaded his local MP Jack Page (C, Harrow West) to take the matter up.

At the same time other suppliers who did not even hear about the tendering process for the shortlist are complaining that it was not adequately publicised.

Comma-Abacus link-up is close

by Kevin Cahill

AN announcement is expected within the next few weeks about a merger between Comma Computers and a major electronics components supplier, Abacus Electronics. Neither party was prepared to comment this week, but reliable sources close to Abacus said talks were at an advanced stage and that statements had been prepared for release to the Press.

An announcement could be due as soon as next week, he added, though he stressed that no deal had yet been done.

Terry Walker, managing director of Abacus, who is understood to be leading negotiations for his company, was unavailable for comment on Monday, though he was at Comma's Brentwood offices.

George McFarlane, his counterpart at Comma, declined to comment other than to confirm an announcement will be made "soon".

Abacus had a turnover of £7.5 million last year, while Comma's turnover for the current year is expected to be between £3.5 and £4 million.

Comma was founded in 1977 by McFarlane and has about 40 employees. It is privately owned.

The company manufactures its own range of DEC compatible hardware, and offers a range of application software packages for the Data General, DEC and North Star Horizon equipment. Systems based on these three account for 50% of the company's turnover.

Comma also supplies a broad range of terminal kit from Newbury, Centronics, Texas Instruments and Hazeltine.

McFarlane did say that in line with the experience of many other computer companies recently, he had been approached by sources in the City with offers of finance, but he had not taken up any of these. The company remains in the hands of its founders.

INSIDE THIS WEEK'S ISSUE

IBM's Japanese link for micro launch ... 3
Saboteurs wreck banking system ... 4
[illegible] service back in business ... 6
Mixed fortunes at Leipzig Fair ... 9
Japanese seek UK software expertise ... 40
Bank stalls Saudi deal ... 2
Cullinane 50% power boost ... 3
Personal programs via Prestel ... [illegible]
DEC doubles power ... [illegible]
Micro News ... 7
Software File ... [illegible]
Company News ... 10/11
Michie signs off ... 12
Focus on friendly relations ... 12
Downtime by Chad ... 12
Letters ... 12/13
Software File ... 13
[illegible] ... 14
[illegible] ... 14
[illegible] ... 15
[illegible] ... 17
Product News ... 17
Crossword ... 38
Jobs: Pages 22/39

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User confrontation is avoided by NCR

by Keith Jones

NCR EXECUTIVES attending the annual meeting of the NCR Computer Users' Association last week were no doubt relieved to hear that the association anticipated no major confrontations with their supplier this year. But the meeting was not without some criticism of NCR's product and marketing policies.

NCUA chairman Derek Williams referred to "slight dissatisfaction" among users about gaps in NCR's software offerings, in particular database and word processing software for the 8250, the smallest NCR machine qualifying users for NCUA membership.

Stronger feelings were expressed by a user of two 8250s who was having to pay two lots of licence charges on some NCR menu software even though he used it on only one machine. NCR's director of marketing, Graham Miller, agreed to "look into" that problem, but he was not prepared to make any concessions to users who were paying twice for software that they used on two machines.

This interchange resurrected what NCR describes as its "intellectual properties" policy which involves the separate pricing of software on a per machine basis rather than per site. The policy has been a cause of argument between NCR and its users in the past.

There was also some discussion of the central software support telephone service inaugurated last year by NCR with the intention of speeding up the servicing of software queries from users all over the UK. Records of the software used at each site are being set up on an 8250 system in London and many users in the North are still waiting for their details to be added.

One Northern user at the meeting complained about the delay and was promised by Graham Miller that the service would be available to him within six weeks.

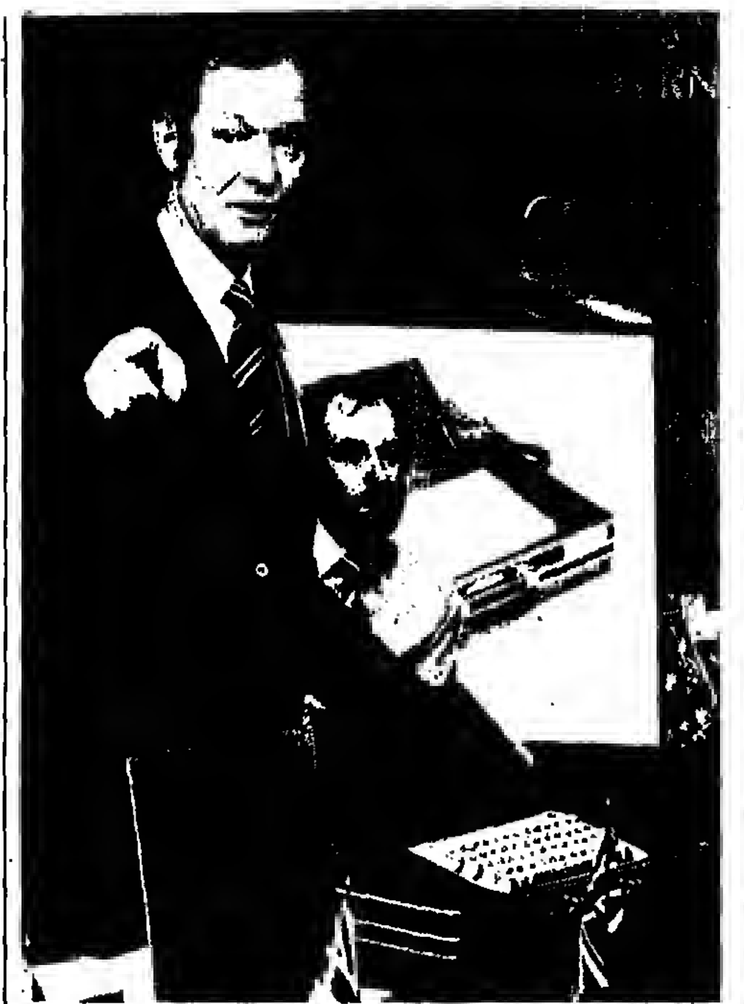
UK launch of multi-processor system

by Rory Johnston

A MULTI-PROCESSOR small business computer system has been launched in the UK by Management Assistance Inc (MAI) as a successor to its Basic Four cluster product. Word processing, data processing, or a mixture of the two are provided for by different types of terminals, each with its own micro, connected to a central file processor.

The product was originally known in the US, where it was launched last autumn, as the Spectrum 80, but the name has now been changed to MAI 80. The central file processor which every system requires includes 2 Mbytes of fixed disc and 1.2 Mbytes of floppy disc. This can support up to four workstations, three printers, and a further 17 bytes of fixed disc.

The word processing on the MAI 80 is the same as that already available on the Basic Four – the package known as Datawrite. An earlier venture by MAI into shared-logic word processing, called Wordstream, was closed down last summer after heavy losses.



Brian Lumb, managing director of Baker Electronics, introduces the 8400 series brief-case micro.

Brief-case micro launched at last

by Kevin Cahill

BAKER ELECTRONICS, the Middlesex-based peripheral supplier has finally launched its 8400 series "brief-case" microcomputer.

The launch last week was seven months late due to difficulties in producing the densely packed components for the RAM machine. Supplier of components, including PC boards, had produced interference with each other and the company eventually wrote off £49,000 of additional development expenses.

The Z80-based machine, complete with 92K of bubble memory and 64K of memory, weighs 17lbs and worked admirably at its launch. The gas plasma display shows 480 characters in 12 rows of 40 columns.

Although the acoustic couplers supplied with the 8400 have not been approved by the Post Office, approval is expected shortly. This will enable the machine to be used as a remote intelligent terminal.

The machine, according to Baker, will sell for about £3,500.

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Company lands Saudi £2.6m contract – but bank withholds backing

by David Craver

A £2.6 MILLION export contract won by Computer Resources to develop software for a Saudi Arabian government agency has failed to secure full backing from the company's bank.

The Saudis require a performance bond worth 5% of the contract price, and Computer Resources has had to divert £130,000 of working capital to cover it after failing to raise the money from NatWest.

The two-and-a-half-year turnkey contract is for an online information system and will involve software development, technical support, operation, maintenance and training.

It will require 55 man years and 40,000 hours of terminal connection time to complete, is the largest ever for Computer Resources, and will represent almost one-third of the company's current annual turnover during the 30-month contract period.

It is part of a complete data centre being installed for the General Presidency of Youth Welfare as part of the Saudi Arabian government's Third Economic Development Plan.

Computer Resources' managing director Ian Orrock is critical of NatWest's response to the company's request for funds to meet the cost of the performance bond.

"The clearing banks don't understand how one does business in the Middle East . . . sometimes they don't even seem to speak English."

A NatWest spokesman emphasised that the bank is always happy to provide British companies with support in securing export business, providing discussions take place in the proper time. "The customers are still in consultation with the bank to resolve a suitable way forward," he said.

A 10-20% profit increase on sales of £3¼ million is expected to be shown when 1980 year-end results are released within the week, according to Orrock.

The company plans to begin a concerted push for additional Middle East orders, and also hopes to announce a large software contract in Britain within the next few weeks.

The Saudi bid was won against competition from seven other companies, the strongest of which apparently came from France. Computer Resources represented the only British competitor.

ORROCK . . . "The clearing banks don't understand".

Scope for mini user group

by Chris Youett

USERS of West German made CTM minicomputers which were serviced by Scope Data Systems, the Sheffield company that recently went into liquidation, met last week to press the manufacturer on how it will continue user support. Scope had exclusive maintenance and distribution rights in the UK.

A Midlands user, Marflow Engineering, was behind the formation of a user group last week. Its spokesman, Paul Fennell, said some of the users had an ad hoc maintenance agreement with ex-Scope staff.

"Fortunately for Marflow, we have had no breakdowns during the last five weeks and I hope that CTM will set something in motion shortly," said Fennell.

A CTM spokeswoman at Constantine, West Germany said her firm was currently interviewing prospective distributors from the UK and would be making a decision on a new appointment during the next two months.

ComputerWeekly

Thursday April 2, 1981

Vol. 30 No. 751

100,000 circulation – the highest of any computer journal in Britain

IPC Electrical-Electronic Press Ltd, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Telex: 892084 BISPRS

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CIRCULATION

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Subscriptions: UK £18, Students £9; US, Canada ..., Students $30, Europe £30, Students £15; Middle East, North Africa (airmail) £47, South Africa, South America, Southern Africa, Far East, Australasia (airmail) £52; New Zealand (airmail) £58.

Circulation Dept: IPC Business Press (S&D) Ltd, ... House, Perrymount Road, Haywards Heath, Sussex. Tel: 0444 59188.

Publishing Director: Dr J A G Thomas. Editorial Director: Chris Hipwell. Published weekly on Thursday. Registered at the Post Office as a newspaper. ISSN 0010-4787 © IPC Business Press Ltd 1981

The dongle, the protection device which has done wonders for Dataview's Wordcraft package.

US is receptive to UK microsoftware marketing techniques

by Claire Gooding

"THE potential for selling in the US is such that I can't walk away from it", Paul Handover, of software supplier Dataview, told Computer Weekly last week after returning from a trip on which he was surprised to find a large market which might be tapped by UK sales methods.

Dataview is heading for about £100,000 turnover this year with its highly successful Wordcraft package, whose sales have been helped along by the controversial addition of a hardware protection device called the dongle.

Every Wordcraft package needs its individual dongle in order to function, and it prevents unauthorised copies being made.

Handover, who describes himself as "a trusting fellow at heart", dislikes having to protect his product in this way, especially as the dongle is the single most expensive component in the package, but admits that sales have shot up since its addition.

About 13% of Dataview's £44,000 profit in 1980 came from exports to the US and Europe and now Handover is talking about setting up a sales outlet in the US to bring British selling methods to the microcomputer business market.

"The small business market is enormous there, but most dealers rely on 'walk-in' interest. Dealers in the US were very interested in our methods of selling on site, going in with demonstrations of what the system can do for users.

"We are used to selling to professional buyers, whereas in the US the dealers seem to sit and wait for interested individuals to come to them," Handover added.

Dataview's customers already include such names as ICI, the MoD, the Post Office, and May and Baker.

Paul Handover, of Dataview, is planning to try out British selling techniques on an untapped US market.

Cullinane claims 90% productivity boost

THE database specialist Cullinane Database Systems has joined the race to supply programmer productivity tools with the release of its Application Development System/Batch.

Cullinane describes ADS/Batch as "a totally integrated application development system that increases programmer productivity by up to 90% over conventional programming languages".

The package uses Cullinane's Integrated Data Dictionary as its focal point, so that file formats become a central resource and updates to the database automatically become available to other application programs without lengthy individual modifications.

This technique, says Cullinane, with standardised routines and error checking, means that maintenance programming becomes easier and cheaper. Application routines need only the logic required for special processing, since editing, validation and other routine operations on data are handled by the dictionary.

A high level language is provided with the system for the logic programming. According to Vic Morris, Cullinane's UK manager, it is based around the Data Manipulation Language, giving additional procedures to define updates.

Cullinane Corp has recently changed its name to Cullinane Database Systems to emphasise its commitment to the IDMS product range, and its investment in market research and development has begun to bear fruit.

Charles Bachman, database designer and pioneer, has just become Cullinane's vice-president.

Top jobs reshuffled at Apple

by Eileen Steiner

IN a corporate reshuffle at Apple Computer, chairman Mike Markkula has become president and chief executive officer, and vice-chairman Steve Jobs takes his place as chairman.

Mike Scott who was previously president and chief executive takes the place of Jobs as vice-chairman.

The move allows Scott to take fewer responsibilities in the day-to-day running of the company and greater responsibilities for long-range business growth. According to Apple the moves reflect the company's evolution into a major public corporation.

Last month Apple sacked 40 of its middle management staff.

IBM likely to choose Matsushita components for move into micros

by Kevin Cahill

SPECULATION continues that IBM will link up with Japanese manufacturer Matsushita and make its long-anticipated move into the micro market.

Though a deal by which the US company sells Matsushita machines under the IBM name is not ruled out, the likeliest link-up is for IBM to buy Japanese components.

Manufacture of micros aimed at four distinct markets seems likely to centre on Raleigh, North Carolina, where IBM already makes a wide range of peripherals and modems.

The president of IBM Japan, Takeo Shiina, has been quoted in the Japanese press as saying that a link between the two companies may be limited to an exchange of components. Matsushita fuelled rumours several weeks ago by confirming that it was having discussions with IBM.

An alternative would be for IBM to forge a marketing link in the same way as it has done with Minolta, the Japanese manufacturer of photocopiers, which are also sold under the IBM label. This allows IBM a breathing space to develop its own advanced product.

According to US reports, IBM has divided the micro market into four segments: small business, in which typical prices are between \$1,500 and \$8,000 and in which IBM estimates about 5% of the US market has been tapped; users within large organisations, often independent of existing DP facilities, in which typical prices are between \$800 and \$10,000 and of which only 2% of the market is taken up; personal systems for the computer enthusiast, with prices down to \$200 (under £90) where perhaps one third of the market has been tapped; and home systems for games, shopping at home etc, where prices are between \$250 and \$1,500 and where only 1% of market needs are met.

Speculation has it that IBM will aim at the last sector, feeling that its potential is not properly met by existing manufacturers.

An IBM system selling at between \$500 and \$900 including printer is thought possible for this.

Matsushita currently has three separate microcomputer operations. Its electronics division produces machines for OEM sale, its communications division markets a personal machine, and it sells a machine under a different label through a joint operation with Fujitsu.

£200,000 grant for robotics

by Chris Youett

SCIENTISTS at Warwick University have been given a £200,000 grant over three years to develop a robot that can be used in hazardous environments such as nuclear plants.

The grant was made by the Science Research Council to a team led by Dr Mike Larcombe, said to be the country's leading expert on mobile robots. His team is also developing a control system for automatic industrial electric powered vehicles. This is being carried out in conjunction with forklift truck maker Lansing Bagnall.

The aim of the group is to use microprocessors and sensory instruments which will allow the trucks to detect and respond to their environment while carrying out routine tasks.

DoI event came at bad time

by Eileen Steiner

THE one-day seminar on custom integrated circuits, organised by the Department of Industry and the Electronics Components Industry Federation, which was planned for earlier this week was cancelled owing to lack of response.

According to a DoI spokesman the seminar came at a bad time, when most people concerned were tied up at other electronics conferences and exhibitions.

The organisers hope to hold the event in the autumn when they expect the sudden surge in electronics events to have died down. The seminar is specifically aimed at consultants from the electronics industry particularly concerned with the government's MAP (Microprocessor Applications Project) scheme.

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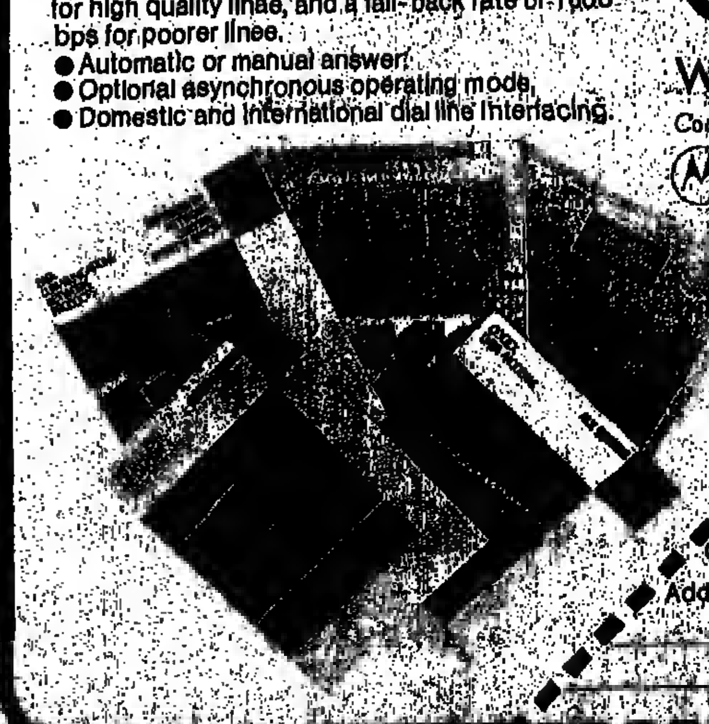

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Programs for personal users via Prestel

by Donald Kennett

AN eagerly awaited experiment in telesoftware is to get under way next month when the magazine Practical Computing takes up British Telecom's offer of 1,000 free Prestel frames to publish programs sent in by readers.

Despite being attracted by the idea, Practical Computing editor Peter Laurie had initially shown reluctance to run the project, realising that checking and inputting the programs might place an unwelcome burden on staff for no benefit to the magazine. He asked Information Technology Minister Kenneth Baker for DoI funds to support the work, but Baker refused.

Now IPC Business Press, which publishes Practical Computing and Computer Weekly, has agreed to pay for a year's part-time work on the project.

Micro maker Research Machines is also providing support for the project in the form of a big discount on an RM380Z to be used for checking and loading the programs.

Laurie hopes to start up on May 1 with about a dozen free programs, in Basic, probably all games, but has not yet been given the block of page numbers by Prestel. The guidelines agreed with Prestel propose 100 pages for editorial material and 300 each for games, educational and business software.

"We hope to stimulate a market for telesoftware," said Laurie. "Initially programs put up will be read and re-keyed, but if it works, the market will supply interfaces to allow them to be loaded automatically. Customers will vote with their wallets, both in buying devices and in using Basic.

"We rely on what people send in – this is the way Practical Computing works.

"There will be a lot of overlap: the programs on Prestel will be a subset or a superset of the programs in the magazine. Half the stuff we get is for the Sinclair ZX80."

LAURIE . . . "We hope to stimulate a market for telesoftware."

Fujitsu to cut overtime

FUJITSU is restricting excessive overtime, and workers who try to beat the ban will be able to do so only under doctor's orders. Concerned that overtime of more than 70 hours a month is bad for an employee's health, Fujitsu management has designated two days a week as non-overtime days, according to the Japan Economic Journal.

The company recognises that individuals involved in software production work outside normal hours, but now requires those who do more than 70 hours overtime monthly three months a row must have a medical check up. The concern is that an essential member of a team involved in software development, for instance, might be lost to illness caused by excessive work.

IBM Japan, Fujitsu's main computer rival in Japan, has introduced similar procedures to reduce employees' workload to one-half of the level of three years ago.

UK out of proposed European datacoms link

By Jack Gee

GERARD THERY, managing director of the French Post Office's telecommunications authority, has called for wide-ranging co-operation between France and Germany in data communications – without any reference to partnership with the UK.

Thery, who was speaking in Frankfurt, said: "Our two countries must seize the opportunity to ensure they have the best trump cards in their hands, both in Europe and throughout the world. They can help to set up a vast European market for the new generations of equipment."

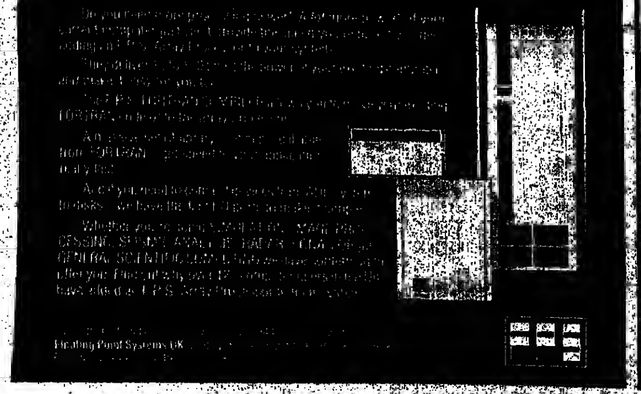
He was addressing Bundespost officials and West German business leaders at a symposium organised by the big French banking group, Credit Industriel et Commercial.

The French telecommunications chief warned that a war over standards between European manufacturers could only profit the US and Japan.

Appealing for a "reinforcement of industrial alliances" between France and West Germany, he said French and German firms should tackle future products such as electronic telephone directories and memory cards "in a spirit of co-operation between our two countries."

But the French Post Office official's remarks appear to have fallen on stony ground in Germany, where there is impatience at France's progress in launching new datacoms products.

FPS ARRAY PROCESSORS. SPEED WITH EASE.



Floating Point Systems UK

Sabotage gang wrecks IBM bank system in computer war revival

by Jack Gee

SABOTEURS broke into a bank at Toulouse, South-west France, last week and wrecked an IBM computer in a revival of the "computer war" which was launched in the area exactly a year ago.

The raiders' target was the local headquarters of the Banque Populaire. They smashed their way into the building by breaking a window. The automatic alarm sounded, just allowing them time to damage the computer, a terminal and line printer before making their escape.

The saboteurs left no clue to their identity and have not issued any claim for responsibility. This silence contrasts with the publicity which Clodo – short for Committee for Liberation and Arson Against Computers – has given to its activities over the past year. During this period not a single arrest has been made.

Clodo (a literal word for "tramp") came into the news last spring when it set off bombs at data processing centres in the Toulouse area operated by Philips Informatique and CII-Honeywell Bull.

A few weeks later the terror group burned down a shop run by CCL in the city. In June they ransacked a hall which was being prepared for an international symposium on computers. Signing themselves Clodo, the gang left behind the message: "Scientist swine. No to capitalist data processing."

In August a 10-lb. plastic bomb failed to explode when it was placed outside CII-Honeywell Bull's centre at Louveciennes, near Paris. But the raiders broke down a security door protecting a computer and confidential software. They bored a hole in a wall, hoping to use this hidden place later for another charge of explosive.

Clodo's attacks on CII-Honeywell Bull property were all accompanied by threats against the lives of the company's managers.

Returning to the Toulouse area in September, Clodo lit three fires simultaneously at a computer and electronics goods shop. The entire premises were gutted.

Clodo again snubbed the police when it set a seven-storey office block on fire in Paris' Opera district on December 2. Computers owned by a major insurance company were saved during the blaze which spread up to the roof.

A police official said after the latest sabotage raid in Toulouse: "It is reasonable to expect that Clodo and similar gangs will step up their activities against computers during the weeks leading up to the French presidential election in April."

Brazil viewdata choice

Telesul's decision in February to run a viewdata trial based on the British Telesi System 2000 does not necessarily mean the eventual full public service will also be based on Telesi, it was reported last week.

Telesp, the Brazilian telecommunications company which decided to choose its system, Prestel or technical grounds and is to be interested still in signing a further contract with British Telecom's Telematik consultancy service.

It was decided to run a Telesi trial because the necessary equipment was offered free (as has been done in the US) and the offer was part of a trade package that included a $2 billion loan.

Independent grocers link up with Syfas

by David Craver

A VIEWDATA system designed to link independent grocers with their wholesale distributors and provide instant information on stock availability, pricing, and product trends has been announced by Spar wholesalers James Hall & Co of Preston. Based on two Computer Automation Syfa minicomputers, the system, known as Telespar, provides small retail grocers with a VDU at their own location with two-way communication to their central supplier.

Currently 27 customers are on line to the central computer. One Syfa handles order input from the dial-up remote terminals, while the other runs Hall's integrated financial accounting and stock control. The company estimates that with the installed hardware the system could be shared by up to 100 retailers.

Design of the system was largely by James Hall's managing director Ian Hall. Software was written by MFT Computers of Manchester and Leeds in Syfa's interactive business language, Sybol, and total development cost was £250,000, according to the company.

The two-way communications capabilities of the system are "very important," according to Hall, since decisions on out-of-stock items can be made immediately by the retailer, while orders are processed and despatched daily.

The system hardware comprises two Syfas which communicate over a synchronous link emulating IBM 3780 protocol. They have 160 and 240 megabytes of disc storage respectively, two matrix printers, and a 300 lpm printer. The retailers access the system through Regent 25 VDUs. They currently share four lines into the Syfa, while the system can support 16 lines.

There are 200 Syfa systems currently installed in the UK.

Electronic typewriter to word processor conversion offered

by Rory Johnston

THE first fruits of Olivetti's acquisition of 40% of the US firm Syntrex have appeared in the form of a kit to convert an electronic typewriter into a word processor. With the addition of a screen and a twin minifloppy disc drive, users of Olivetti ET 221 or ET 201 electronic typewriters can acquire a word processor with plenty of advanced features.

Syntrex's development is basically software, and it has also been demonstrated in the US on IBM model 75 electronic typewriters.

Olivetti calls its system the ETS 100, charging £3,995 for the screen and discs and £200 for the conversion kit, consisting of some electronics and new key tops, which can be fitted to the typewriter in the field. The basic ET 221 typewriter costs £1,399.

Later this year a keyboard will be launched to make the ETS 1010 into a word processor on its own; a separate printer will also be available to give 30 cbps instead of the 221's leisurely 20 cbps. Four keyboards will be able to share one printer.

For 1982 the model 1020 is planned, providing hard disc storage and up to 14 keyboards per system. The Syntrex software is available only on rental, at £12 per month. Extra software is needed for tabular typing, form filling, mathematics and sorting.

Among the unusual features of the screen are a smooth scroll, so there is no jump from line to line, windowing, so a variable space is available for system messages underneath the text, and "folding," which allows the extremes of a wide document to be shown on the screen, leaving out the middle.

Converted typewriters can be switched back to use on their own whenever required.

Compec North rush

THREE-QUARTERS of the [illegible] available for the Compec [illegible] has already been reserved after just four weeks of bookings. The Manchester-based show, the first of Computer Weekly's Compec series to be held in the North, takes place at Belle Vue from June 23-25.

[illegible] executive director of Exhibitions, which is organising the show on behalf of Computer Weekly and its sister publication, Datascope, said: "Clearly we've identified a real need, and I would encourage anyone thinking of exhibiting at Compec North to get in touch very soon."

Several computer-related exhibitions – like PACE (Peripherals and Computer Exhibition) and the Computer Show – are not running this year, and others – like Computermarket – have suffered a decline in bookings.

The initial stand allocation at Compec North is in the 3,700 sq metre Lancaster Hall, close to the city centre, with parking space for 3,000 cars.

Each exhibiting company gets 200 free visitor tickets to allow it to attract special target groups, otherwise there is to be a £2 charge at the door. This follows the successful introduction of charging at the main Compec show at Olympia, London last November, which dissuaded casual callers and ensured a high quality business attendance.

Contact: Compec North, IPC Exhibitions, Surrey House, 1 Throwley Way, Sutton, Surrey SM1 4QQ.

Hugin aims at retail chains

[illegible] data entry terminal [illegible] in the UK by Hugin of Sweden. The unit, the [illegible] are members of the Hugin Group. [illegible] for the UK [illegible] two-way communication with a central computer by modem or acoustic coupler. Data collected can be transferred either by telephone line or by use of a memory pack.

The Micronics 445 can be customised programmed and loaded. The unit comes with 8 to 64K of CMOS memory.

NEWS BRIEF

Govt raises R&D suppo

SUPPORT from the Depart[illegible] of Industry for research and development has been increased by £38 million in the government's expenditure plans for 1981-82.

Much of the £26 million increase (allowing for inflation) is expected to go on applications of information technology, [illegible] robotics and CAD/CAM, in addition to the funds already allocated to the Microprocessor Applications Project. The other half will go on the money will be spent on research.

ICL replaced

KINGSTON Polytechnic's library has replaced its ICL 1901A mainframe with two Digital Equipment systems. Now installed are two DECsystem 20 for general interactive computing and a VAX 11/780 for technical work.

Saudi phone

SAUDI ARABIA has awarded a contract worth over $1 billion to Philips of Holland and Ericsson of Sweden for 600,000 telephone lines. The contract, part of a project begun in 1978, is planned to [illegible] one million lines eventually. Half the lines will support digital transmission, and a small number will use optical fibre cable.

Seconded to

PHILIPS Video Division [illegible] Department of Industry for six months, to help [illegible] the DoI-sponsored Microvideo data and telesoftware broadcasters, software providers, manufacturers, software houses, distributors, British Telecom and the Independent Broadcasting Authority [illegible] technology [illegible]

Preparing to key in her weekly stock to the Telspar system is Edith Howard, manageress of a grocery store at Walmer Bridge, Preston.

DEC offers double power and memory

TWICE the power and twice the memory size of the Digital Equipment PDP-11/04 at only 30% greater cost is offered by DEC's latest PDP-11 machine, the 11/24. With the 11/24 launch DEC has added four new models to its Datasystem end-user line, all based on the new machine.

The 11/24 is implemented in custom MOS/LSI technology and is the lowest priced DEC minicomputer with a megabyte capacity. It provides four times the memory expansion of the PDP-11/34A as well as 90% of its integer performance while costing 30% less. Prices start at £6,500.

Expansion to one megabyte depends on an optional 22-bit extended addressing module.

The new Datasystem models are the D346 and 348 which top the Datasystem-300 series and the D522 and 528 which are entry level systems in the Datasystem-500 family. Standard memory sizes are 128K-bytes on the 346, 256Kbytes on the 348 and 522 and 512Kbytes on the 528.

Classroom computers

KENT Education Committee is to spend £50,000 a year over the next five years to put computers in the county's classrooms.

Committee chairman John Barnes is keen to see all Kent's 130 secondary schools with their own computers. So far about one-third have them.

Part of the cash vote will be spent on a study to see how the computers can aid school administration.

Secondary schools will receive a grant of £600 each to help towards the purchase of computers. The balance of the cost of equipment is expected to be met from Parent Teacher Association funds and local industry.

"Many schools and PTAs have already taken matters into their own hands and raised the money to buy microcomputers," said Barnes.

The Education Committee wants to see courses introduced for computer science and computer studies for CSE, O level and A level examinations.

Yellow Pages order

XYLOGICS will supply five XY2300 Winchester computer systems for online processing of the Post Office Yellow Pages advertisemcot sales. The system is being developed by ITT World Directories (UK) which is responsible for two-thirds of the total sales for the Yellow Pages in the UK.

The order marks Xylogics' first sortie into the end-user market with a total system. The value of the hardware is about £60,000.

Up to 90 contracts an hour can be entered at each of four regionally located systems in sales offices in Glasgow, Manchester, Birmingham and Bristol. A fifth system will be installed at ITT World Directories headquarters.

Data collected at the regional centres will be sent up daily via dial-up telephone lines to update a central file held on ITT's DEC VAX central computer facility in Birmingham. Automatic dial-up of each of the XY2300 systems by the central DEC computer to enable nightly transfer of information is being developed by the company.

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WORD PROCESSORS				
DEC				
WS78, stand-alone system, VDU, printer, communications.	425	355	295	4985
WD82, two-user system, 2 VT100's, 2 dual floppy discs, printer.	-	854	645	11100
WORD-11 (PDP11 word processing software).	-	475	380	4500
Options				
Automatic sheet feed.	-	48	40	728
Acoustic hood	-	10	8	220
MINI COMPUTERS				
DEC				
PDP11/03.	541	416	343	5895
PDP11/TO3.	966	743	612	10169
PDP11/23.	725	557	386	7628
PDP11/34.	1448	1113	915	15238
PDP11/44.	2483	1908	1567	25194
PDT150 (including terminal)	480	390	305	4950
Datasystem 0325	1400	1090	780	18500
LINE PRINTERS				
Centronics				
6300 300 LPM printer (includes options).	320	245	198	3150
6600 600 LPM printer (includes options).	415	318	250	4050
DESK-TOP COMPUTERS				
Hewlett-Packard.				
9815A.	195	153	127	2055
9816S.	208	164	136	2199
9825S.	380	318	235	4227
9826A.	599	449	371	6990
9845T.	1685	896	740	12902
9845C.	1850	1575	1280	21686
9872B 4 pen printer/plotter.	245	200	158	2880
9874A digitiser.	422	342	282	4540
9875A dual tape cartridge drive	150	119	98	1584
9876A thermal printer.	216	171	141	2275
9878	80	64	52	933
9885M flexible disc drive master	145	120	94	1695
9885S flexible disc drive slave	116	95	79	1360
TERMINALS				
DEC				
LA36.	47	42	35	475
LA34 DA	50	45	38	540
LA34 AA	55	50	42	595
LA180.	100	88	75	1295
LA120 KSR.	130	110	90	1495
LA120 R/O.	120	100	85	1425
VT100.	80	70	59	925
VT52	50	45	38	595
Texas				
743.	88	66	54	1105
745.	105	92	73	1195
763.	160	135	104	1995
765.	198	160	118	2195
810.	115	94	77	1250
820 KSR (full spec)	125	102	87	1480
820 R/O (full spec).	120	97	80	1900
Hazeltine				
1410.	42	37	32	475
1420.	55	50	44	715
1500.	72	62	52	860
1510.	96	85	69	1050
1520.	86	67	49	800
1552.				
Hewlett-Packard				
2621A	83	64	55	975
2621P.	146	114	95	1510
Hewlett-Packard (continued)				
2631A.	167	155	128	2074
2631G	249	196	162	2921
2635A.	225	172	143	2370
2647A.	418	345	270	4914
2648A.	275	230	180	3267
Diablo				
1650 KSR	190	145	120	2088
1650 R/O.	150	120	100	1875
Teletype				
Model 43 printer	70	58	48	820
GRAPHICS DISPLAY TERMINALS				
Tektronix				
4010-1.	260	215	170	3049
4012.	410	324	260	4920
4013 ASCII/APL.	400	320	268	4878
4014-1.	675	550	435	7871
4015-1 ASCII/APL.	765	630	495	9007
4018-1.	920	750	595	10809
4631 hard copy unit	235	192	150	2744
4632 video hard copy unit.	235	192	150	2744
4662 X-Y plotter.	200	160	140	2550
4663 interactive plotter.	520	427	335	6097
4923.	115	95	75	1347
4953.	172	145	112	2023
4954.	280	230	182	3298
4027 colour graphics	480	380	330	6008
4051 graphic computing system.	325	258	225	3453
4052 graphic computing system	600	473	410	6307
4054 graphic computing system	960	782	678	10425
OFFLINE STORAGE				
Techstar.				
816.	85	65	55	1099
951EE.	112	90	68	1238

MICROPROCESSOR DEVELOPMENT SYSTEMS	RENTALS FROM Weekly	1 month	3 months	6 months	Sale Price
Intel					
MDS 231	200	770	735	660	*7500
MDS 221	170	685	625	560	
267 FD.	330	1280	1215	1075	
Tektronix					
8002.	330	1280	1215	1075	
Motorola					
EXORciser I.	200	770	735	660	
EXORciser II.	275	1080	1015	895	
EXORciser II (68609)	325	1250	1195	1055	
EXORmax	445	1710	1640	1445	
Texas					
AMPL/RS990/4	900	1155	1105	975	*9000
TMS 8900 emulator	85	365	350	310	
National Semiconductors					
Starplex.	275	1060	1015	895	
Futuredata					
AMDS.	250	960	920	815	
Zilog					
ZDS/40.	250	960	920	815	
MCZ1/05.	150	575	550	490	
RCA					
Cosmac dev system	200	770	735	650	

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Infoline service is back in business with VAX machine

by Rory Johnston

PROSPECTS for the mucli-troubled UK online information service Infoline look good, following a decision to buy a dedicated Digital Equipment VAX 11/780 to re-start the service and the selection of Battelle Institute's Basis retrieval softwarc.

Robert Maxwell, of Pergamon Press, wbo bought Infoline in June last year, has enlisted some of its former owners, the Royal Society of Chemistry, the Institution of Electrical Engineers, and the British Library, to serve on an advisory board for the service.

Infolioe has been out of service since September 1980 when it was taken off GSI's Univac 1100, which it had outgrown. Plans to use an IBM 4300 at Scicon fell through because Infoline staff were not keen on IBM hardware suitability.

When Battelle released its version of Basis specially developed for the VAX, it was decided to plump for that, particularly since Infoline had been using Basis before and customers were familisr with it.

The DEC machine will cost £500,000.

Infoline staff, before the Pergamon takeover, did several years' work on modifications to Basis, and this will be incorporated in the system to be installed in central London at the end of April. The service, with about seven million records of engineering and chemical abstracts on line, should start in July.

The suspension had beeo undesirable from a marketing point of view, commented Infoline salcs manager Peter Nichols, but he was "pleasantly surprised at the number of customers still interested" tbnt he was mecting.

The system will be accessible by PSS within the UK and on Euronet, and also in the US via IPSS, though little emphasis was being placed on the US market as yet.

Preparatory file conversion is already going ahead on Battelle's VAX machines in Columbus, Ohio.

The time if not his exhaustion after completing the first London marathon last week was measured and recorded by S. B. Electronic Systems and Olivetti.

Marathon effort by Telepen

by Keltb Jones

SUCCESS in last Sunday's London Marathon was not confined to the winning runners. One of a few all-British companies involved with the event, S B Electronic Systems, was more than delighted that its Telepen system managed to read correctly all the bar-coded tags carried by the 7,500 competitors around the rain-soaked and muddy 26-mile course.

The tags were pinned on the vests of the runners after they completed the race and were batched up in order of finishing. They were then read by a team of 12 Telepens into an Olivetti P6060 computer which coupled the runners' codes against the automatically recorded finishing times to establish exactly who finished wheo.

The Olivetti system was then able to find out if any runner entered the race unofficially or illegally by checking each code against a list of valid starters.

Programming was in a mixture of extended Basic with additional instructions for file management and peripheral handling and by assembly language based on the 360 assembler.

Nicholas Enticknap reports on the Civil Service and banking pay disputes

Strikes cut government revenue by 40%

AS the programme of industrial action mounted by the Civil Service unions entered its fourth week, the unions issued a statement saying that their actions have denied the government about 40% of its normal reveoue.

They say that in the first two weeks of the action only £99 million of VAT payments were banked, compared with the average of £700 million, while in the first week only £154 million of National Insurance paymeots were made, compared with the normal £315 million.

These figures were released following a statement in the Commons by Sir Geoffrey Howe that "a substantial proportion of the reveoues due has been received".

Two further government computer installations have now joined those already on strike, bringing the total number of sites affected to 14.

The first is the DHSS centre at North Fylde, which transfers money from the National Insurance fund to the National Health Service and to other smaller DHSS departments. The effect of this actioo will be to prevent inter-government financial transfers worth £80 million a week.

The second new strike is at a Ministry of Defence installation at Liverpool, where nine computer operators have been called out. This installation makes payments averaging £80 million a week to large and small defence contractors, and banks receipts averaging £20 million a week. All these transactions will be halted.

Work on management dilutes bank action

THE THREE one-day strikes held at major clearing bank computer centres by the Banking Insurance and Finance Union (BIFU) last week had less impact than the unions had anticipated.

Both Lloyds and Barclays reported minimal effect, though the union says that 100% of its membership responded to the strike call.

The strike at Lloyds' Londoo installation meant that about 20% of the day's work could not be completed, according to a bank spokesman. All cheques received from other banks were processed, besides about one million from the bank's own branches.

The Cashpoint cash dispensers were working normally from about 9am; they were out of actioo for a while before that, but this was due to a technical fault and not a strike.

The two Barclays installations at Gloucester and Wythenshawe auffered eveo less disruption.

The only effect was that some of the output (bank statements and the like) was distributed a day later. The Barelaybsnk csah dispeosers worked normally.

A major reason for the ineffectiveness of the BIFU action was non-co-operation of the other major banking unlon, the Clearing Banks Union.

CBU members are also negotiating a pay claim, but for a lower amount, and were instructed to work normally even if this meant crossing picket lines.

The CBU is not affillated to the TUC, and draws its members mainly from middle msnagement among the bank employees.

Estate agency aid

AN estate agents software package designed to record applicant and property details, perform selection and matching routines and record sales details has been telensed by Selven Systems in Essex.

Selven eloims that the user will save on postage of property details and will assist identificstiun of the most likely purchaser. The system is written in CBasic-2.

At their leisure

PARIS-BASED holiday organisation Club Mediterranee will allow its "gentle members" a computer familiarisation course at Kantrina, its new resort village in Italy, this summer.

The French telecommunications authority, Thomson – CSF and Cll Honeywell Bull are cooperating in setting up a wooden equipped with microcomputer.

MICRO NEWS

by Eileen Stainer

UK-built speech synthesis chip in competition with US giants

A BRITISH microprocessor consultancy company, Triangle Digital Services, based in the City, has designed its own speech synthesis chip which it has incorporated on to a printed circuit board speech synthesiser, the TDS 910.

Aimed at the low volume industrial systems and security systems markets, the TDS910 can speak by the operation of microswitches or reed relay contacts. It can say the numbers 0-9, key words like "point" or "kilo" warnings such as "fire" – get out" and "limit exceeded". It can also speak measurements of weight or length.

The speech chip can synthesise sentences, phrases, and phonemes when triggered by ooe of three inputs. These are the abovementioned switches, remotely over a two-wire universal asyochronous receiver transmitter interface, and through a staodard eight-bit parallel port.

Storage of the speecb is a 32K PROM standard with room for two extra ROMs which can store an extra 70 words. This capacity can be expanded further with add-on ROM boards.

Competing with established US giants like Texas Iosiruments, National Semiconductor and Gensrl Instrument Microelectronics, Triangle's director Peter Rush is all set to manufacture the speech chips too.

It all started a year ago, he told Computer Weekly, when he realised that soon there would be a great demand for speech syothesis in iodustry and little expertise to back it up.

From there he set out to study the coocept of speech synthesis and designed his own chip, which led to the "easy-to-use" speech module. Rush's method of breaking down the speech and eocoding it lies somewhere between the linear predictive coding method implemeoted by TI and the waveform compressioo method used by GIM. In fsct it cootains some elements of both.

His service, which costs about £100 per word, offers speech at three levels of quality. The analysis procedure can origioally be carried out on a phoneme, a word or a phrase, each of which becomes a building block for the utterance assembly information, which is stored io ROM with the speech parameters.

The prototype board TDS910 was completed in January. The board contains the speech chip, the TDS90, which is a 40-pio dual-in-line device, interfacing circuitry and the speech storage ROMs. Ruah emphasises that no microprocessor is required, uolike his competitors' sets which are used in consumer products.

The actual speech chip performa three functioos: speech ayothesis; putting in utterance; and decoding a signal indicating which word or phrase is required.

If a customer wanted the standard board with six custom words for a particular application it would cost him about £600 and delivery would take three weeks plus a further two weeks for each ten words to be analysed.

Quality of speech depeods on the level of analysis as indicated before, whether oo a phrase, word or sentence, and slso on the amount of bits of storage assigned to each word or phrase. Rush's analysis system can stretch from 700 bits per word to 5,000 bits per word.

The more usual rate of storage is 2,000 bits per word (similar to National Semiconductor's chosen storage rate) and this is used on the standard set of words supplied. Thus, a 32K ROM would contain 16 words but this could be doubled to 32 words if the user needed to cut space or cost.

Any person's voice can be used for the origioal analysis to obtain the speech parametera, so the system can become personalised. With a licence obtainable from Peter Rusb, the user can eves scquire the necessary equipment and have training so that he can do his own speech analysis.

The TDS910 speech synthesis board is available in the UK from Triangle Digital Services in the City and Semicooductor Specialists (UK) in West Drayton for a price of £152.45 in one-off quantities. Standard vocabulary memories are also available.

Peter Rush, managing director of Triangle Digital Services with his speech synthesiser . . . no microprocessor is needed.

Dealers lose out on Apple education offer

SOLE UK distributor for Apple, Microsense Computers of Hemel Hempstead, is offering a discount purchasing scheme for education, similar to the one the company ran at this time last year. For a limited period in March, April and May, Apple systems will be available at 20% off normal retail prices.

Unfortunately for Microsense, the offer may have been made at the wrong time, while schools are waiting for the microcomputer money promised by the government. Even so, the company has had a lot of last-minute purchases.

In real terms Microsense will have nothing on the deal – it's the dealers that lose out. Apple dealers usually buy from Microsense at a discount, but with the 20% discount for schools on top, this means they will make only 5% out of the sale.

Peter Sterland, managing director of Personal Computers, Computer Weekly, that the scheme exteods the customer's payment time by 30 days. So the dealer would be using some of his small profit to finance debts for these deals for up to three months.

Another problem with schools is the extra attention required, and expected, from a deal. By the time the dealer has delivered, set up and got an Apple system going, there is little, if any, of his profit left.

Sterland also pointed out that the offer includes related accessories and peripherals. Some of these are bought from Microsense at 20% discount in the first place, so the dealer ends up giving them away.

Another dealer, Microdigital (now part of Laskys), says it is having nothing to do with the scheme. All sales made under the name of Lasky must carry a certain percentage profit margin.

A typical 48K Apple system with one disc controller, a black and white monitor and ten blank discs sells retail for about £1,500, which makes the 5% profit margin just over £50.

Philips 16-bit system has 4-gigabyte virtual memory

16-BIT microprocessor that has a four-gigabyte virtual memory address space is being designed by Dutch electronics company Philips Data Systems of Apeldoorn. The new computer set is said to have four times the virtual address space of Intel's new 16-bit device, the 8086.

Philips claims that when the new set is completed it will represent a minicomputer in a large scale integrated circuit configuration. The set will be compatible with the company's P800 minicomputer family.

Built in NMOS technology at 3.5 micron dimensions, the microprocessor has a virtual memory space defined by a 32-bit wide address. This appears to the user as four gigabytes, as the virtual memory follows the microprocessor's own memory location as if in main memory.

With this amount of virtual memory, however, the speed suffers. Philips has adopted methods of parallel functioning to help increase the speed. For example, memory management unit checks are carried out simultaneously with instructioo execution.

In the 286, Intel's memory management tasks are carried out by software, so saving space.

Address space of Philips' processor is divided into 64,000 segments, each capable of holding from 256 to 64K-bytes. This flexibility of the segments allows each one to comprise a complete software task. Other processors are less flexible.

Zilog's recently announced virtual memory processors, the Z8003 and Z8004, use a paging system with fixed blocks. This wastes memory space, as many tasks could fit into smaller pages.

Intel's 64K dRAM available

Intel's 64K dynamic RAM is now available ex-stock from Rapid Recall. The 2164, uses HMOS technology and comes in two versions: 2164-4 with a maximum access time of 150 nanoseconds, and 2164-6 with a maximum access time of 200 nanoseconds.

In a 16-pin package, it is functionally and pin compatible with earlier 2118 16K-bit devices. Upgrade from 16K to 64K requires the addition of one multiplexed address line.

Viewdata conversion program takes off

by Donald Kenoett

LANGTON Information Systems, the London-based bureau and consultancy serving the publishing industries, is experiencing a surge of interest in its three-year-old Preview program which converts mainframe data files into a viewdata database. It has made three sales in Europe and has received an EEC grant to make the system compatible with all planned European viewdata services.

Director John Durham said the market had matured, and the relationships between the various areas – private and public systems, gateways and bureau services – were becoming better understood.

Ringier, one of Switzerland's largest publishers, has bought Preview to convert files both for the public viewdata service and for its in-house system which is based on Systems Designers' IVS-3.

In Belgium, Langton has sold a licence to operate Preview as a bureau service to Bell Telephone Manufacturing, which at the end of last year launched a viewdata bureau based on a GEC 4085 running Prestel software.

A second Belgian company, Centre Informatique Generale (which last year bought out Lowndes-Ajax in the UK) has bought Preview to use with the viewdata system it is developing in-house.

The EEC funding is to cover the majority of the cost of the design phase of a universally compatible version of Preview to be completed in June. Minority funding is com-

DURHAM ... "The market matured".

Shake-up for Fujitsu Word Machine group

by Rory Johnston

FUJITSU has reorganised its US Word Machine group following delays in the launch of its IBM-based word processing system, which has been under development since 1978.

The reorganisation, according to new group manager Charles Palmer, is to enable the product to take advantage of Fujitso's R&D expertise and new developments such as bubble memory.

The concept of the Word Machine word processor was to use IBM obsolete 3604 and 5706 to run word processing software to give the equipment a new lease of life. This philosophy, Palmer told Computer Weekly, had been banished by IBM's "statement of direction" last summer that it would aim to provide ways of linking all its text processing products.

Large integrated systems would be bonoured in the eyes of the marketplace since IBM had blessed the concept, Palmer said.

But IBM had then indicated that the world should wait for it to come up with the goods.

Palmer remarked: "I agree with everything except the waiting." He has his machines on field trial now and hopes to launch them on the market in June.

The specially built terminals with Word Machine attaches to the IBM mainframe have been completely redesigned. Each contains a microprocessor and 96K of memory. Palmer does not agree with local storage, since he feels files should be the property of the company and not of the author, but he sees that some prospective customers need local storage.

Peace hopes in health centre strike

HOPES were high of an end to the strike of 50 computer staff at North West Regional Health Authority computer centre this week.

Half the staff at the centre are still in dispute three months after return to work agreements were negotiated nationally for all the health authority computer centres. Trouble flared at the Fazakerley Hospital-based centre after managers entered the computer room one night and removed a tape which had been processed.

A return to work has been ordered because the Regional Health Authority and the trade union NALGO, have failed to agree on whether any overtime will be lost during the three months' dispute.

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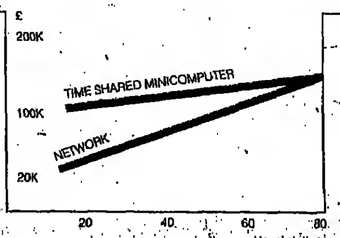

One day all computer systems will be this cost-effective

Local Computer and Beck-and Storage Networks (LCN/BSN) will dominate the computing scena for the next decade and beyond.

The Zynar/Nestar network qualifies as the most cost-effective configuration possible todey.

Its user-orientation and adaptability have secured an installation base covering such diverse activities as banking, transport, retailing and office automation.

When a system with this specification can pack as much power as a mini-computer for a fraction of the cost – that's news. That's Zynar.

- Local network accommodates user work stations and system resources based on the popular Apple personal computer.
- Typically 10-80 nodes per network.
- Multi-network configurations and gateways to other systems.
- Nestar file server permits shared, synchronised access to data and programs.
- Up to 66MB storage with proven Winchester disk technology.
- Support for all major Apple operating systems.
- Full security features including local storage, password protection and turnkey pre-selection of environment.
- Built-in redundency through modular structure using common system components.
- Range of application software, including full feature electronic mail, distributed financial planning and a wide spectrum of commercial applications.
- Facilitates rational use of personal workstations within organisations and ensures compatibility of data for future needs.
- Unconstrained network topology.
- Distributed bus arbitration.
- High data rate – 250,000 bits/second.

Zynar is the European business partner of Nestar systems Inc.
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ZYNAR

SILICON TECHNOLOGY & COMPUTER SCIENCES

SOFTWARE FILE *by Claire Gooding*

Zilog's Unix version is genuine article

THE ubiquitous Unix has been introduced by Zilog for its Z8000 as a multi-user development system.

The Z-Lab 8000 Programmers' Development System, announced last week from Zilog's Cupertino headquarters, runs under an operating system called Zeus which is Zilog's own Z8000 version of the original Bell Labs Unix.

The Z-Lab system can support up to 16 users and can be used to develop code for all Zilog MPUs. The system separates hardware and software, according to Zilog. This could take advantage of the large number of tools already developed through Unix for such purposes as documentation.

Zilog paid Western Electric the full licence fee for Unix, so like the Microsoft 16-bit implementation (Xenix), Zilog's Zeus is the genuine article.

"Zilog has extended the basic Unix system," explained UK marketing manager Phil Pittman. "There have been some enhancements to the Bell Labs original, particularly related to ease of use and the reliability of file systems.

"As far as the command structure is concerned, someone who knows Unix will not notice any difference."

Zeus supports over 60 utilities, such as self-teach aids and editing/operation aids.

"The actual software development was fairly minimal," said Pittman. "It was just a matter of recompiling Unix software to run on the Z8000." Zilog used its cross-software package, which was released a year ago for developing Z8000 code on the Digital Equipment PDP-11.

"Judging by the development time, Unix was decided upon before designing the hardware," said Pittman. "Zilog has been interested in using Unix for some time."

Initially, Z-Lab will be sold to Zilog's existing customers and component users, but Pittman expects Z-Lab to be in demand from all sorts of places as a general purpose development system.

Z-Lab is available in the US in two versions: Model 20 with 256K-bytes of memory, 24-megabyte Winchester disc drive, and two controllers, costing $27,000; Model 30 at $33,950 for 512K-bytes of memory and two Winchesters.

Zeus is priced at $2,000 for one user and $4,250 for four users. Prices for the imminent European release are likely to be in the same region.

Terminal turns into a mini

THE Mantis development system, seen by Cincom as a potentially wider selling product than its award-winning database Total, was launched in the UK last week.

"What we've done is turned a 3270 terminal into a mini," said Mantis product manager Merle Parkes. "Somebody using a mainframe terminal can get the sort of productivity and ease of use associated with minis while actually sitting at the screen.

"We've tried to put something together which would take the user all the way through the development cycle.

"Many design methodologies are good, but their problem is that they are not always easy to use with the software available, such as structured techniques which aren't applicable with Cobol or assembly languages. Mantis can be used from the design stage onwards."

Cincom will be selling the product outside its established user base, into CICS and DL/1 shops.

Adaptable package aimed at solicitors

A SOFTWARE house which caters exclusively for solicitors has celebrated its ninth birthday with the launch of a new package on the Data General commercial systems range which can cope with the needs of a two-partner practice right up to major firms with 60 partners and 400 staff.

Norwel, a Manchester firm which has just opened a new London office, sees solicitors as a potentially enormous market – there are about 24,000 in the UK. There is already about £500,000 worth of Data General Nova and Eclipse kit on order for the system.

Norwel managing director Tony Welsby admits to having reinvented the wheel in the process of developing an adaptable all-purpose product for his chosen market.

"One of the advantages is that we learn from previous mistakes. We can introduce things we missed last time, and cater for a specialised market because we know the topic inside out."

Welsby does not see the system as a turnkey package, but as a product which can be adapted to individual needs. "It's a market where people feel they know what's right. Features have to be tailored according to needs. Of the six systems installed, for instance, five have totally different numbering systems."

The system is written in Cobol and copes with the everyday management of a solicitor's firm, including client accounting, time recording and matter registration. The basic elements allow the user to keep track of a client's details, accounts, and such factors as the time and effort allotted to his affairs.

There is also an extensive management report, which can be produced on as many as 560 different criteria. "Financial management is becoming increasingly important. Partnerships need to increase their efficiency and profitability and more," explained Welsby.

The specialised extras provided by Norwel include facilities to keep track of property deals and conveyancing, archives, wills, and "client conflicts", where one partner's clients may be suing another's. It also provides a trust accounting facility, and general office tools such as payroll and word processing.

Solicitors are already using the package on-site as end-users, and Norwel says that even though they are "a cautious bunch," the ideal is winning ready acceptance.

The entire system, including software, hardware and tailoring, costs anything from £18,000 (the hardware for about half of that) up to £150,000 for large firms.

NCC directory sorts out the non-starters

THE National Computing Centre has published its Directory of Computing Software*, based on information contained in its own database.

The directory divides software into systems and applications, and then further categorises it into about a dozen groups of systems products, including compilers, DBMSs, operating systems and programming aids. The applications software contains about two dozen groups, such as personnel, graphics, marketing and medical.

The idea is that the user can go straight to his area of interest, where the summary table gives each product a single line of description including acronym, and full name, supplier, and target hardware. At the back is an index of acronyms and manufacturers' codes.

Once the user has selected suitable products from his particular category, more information can be obtained from the NCC by using the reference number from the category table. The NCC's information service then provides standard information (abstract) from its database, or the descriptive and technical information from the supplier, for a charge of 50p per abstract.

There is no attempt in the directory to make comparisons between products, and it is left to the reader to take his inquiries further to find out such things as comparative prices, and the range, power and performance of individual products.

But it does answer the initial question of what is available in a particular field, and provides a short cut for someone seeking a product to suit an individual installation. The basic information, which includes crucial factors such as the machines a product will work on and the language in which it is written, will at least eliminate the non-starters and make the job of selection easier.

*Directory of Computing Software, National Computing Centre, NCC Information Services, Oxford Road, Manchester M1 7ED. £30.

Nested arrays in APL

THE high-level language APL has been given "a major extension" by bureau STSC. [illegible] Nested APL*PLUS [illegible] be implemented [illegible] system is the [illegible] of nested [illegible] claims [illegible] "the next [illegible] commercial [illegible]" for APL. [illegible] arrays, described [illegible] an entire major evolutionary [illegible] or array of APL can [illegible] time, where multidimensional array is a single information [illegible] array, any item each item [illegible] array of any rank, [illegible] In a [illegible] can itself be [illegible] shape or type.

According to STSC, [illegible] a more natural [illegible] data as it is common [illegible] business applications. [illegible] Myrna, vice-president of the [illegible] development arm, sees nested arrays as likely to improve programmer productivity in APL as much as APL improves programmer productivity in relation to other languages".

The nested arrays system will be available at no extra charge on STSC's worldwide APL*PLUS network.

[illegible]se boom

[illegible] market for online data [illegible] will pass $1.25 billion [illegible] $5.5 billion by 1991 [illegible] from the [illegible] International Research [illegible] Inc. [illegible] entitled "On-Line [illegible]" is available [illegible] High Street, [illegible] USA.

SAM rejig

THE company which [illegible] nounced major market [illegible] the UK and Europe, [illegible] Associates, is turning [illegible] the CPP products [illegible] when CAP-CPP's [illegible] keting arm folded. A new [illegible] sion is to redevelop [illegible] SAM products, which [illegible] mainframe performance.

Leipzig Fair is one of the East's windows on the West. Paul Fisher reports

UK firm wins £87m contract at Fair of mixed fortunes

REACTIONS of UK visitors and exhibitors to this year's Leipzig spring fair, the major East German industrial and trade show, were mixed.

Representatives of GKN were delighted at the prospect of an £87 million contract to build a foundry for the East German truck industry. The Plessey Group, on the other hand, could barely conceal its disappointment at having returned home from a third visit to the fair with an empty order book.

A spokesman for Leicester-based Rank Precision was buoyant, having secured £30,000 worth of business for spectrometers with another £100,000 in the offing. He said: "I like doing business with the East Germans and have had three times more solid enquiries than last year."

Other British businessmen complained at the preponderance of general visitors over potential buyers.

Racal Decca was happy at having clinched what was described as "a considerable order" for the first all-British satellite navigation system, the DS4. Racal Decca trades through the Dutch-Belgian Trading Company, an organisation which is oriented to marine business behind the Iron Curtain.

"It's the best show I've been to for a long time," said a man from Racal Decca. Robbie Robertson, the senior man on the Plessey stand, disagreed, saying: "By comparison with other East European fairs, the exchange of information is not as open."

Plessey director P. Rogers found two out of a scheduled three meetings with East German dignitaries were cancelled. Preliminary discussions, following an East German approach, over a licensing deal worth upwards of £1 million did not come to fruition and, owing to the sensitivity of negotiations, Plessey officials were not prepared to elaborate.

"We travel," said Robertson, "in hope and hope that our hopes come true." He did not know if Plessey would be travelling to Leipzig next year.

The Plessey director was one of a party of six businessmen accompanying Lord Trefgarne, the Parliamentary Under-Secretary of State at the Department of Trade, to the fair. Lord Trefgarne spent three days in Leipzig and visited many of the 60 British stands in the main fairground.

Lord Trefgarne sounded a positive note, saying: "Prospects for an increase in trade with the GDR are very encouraging. Trade between the UK and the GDR is still below potential for two developed industrial countries. We have recognised this for some time, and my visit was part of a continuing programme of high level contacts in both directions."

Since last year the dialogue at ministerial level has involved visits to East Germany by Minister for Trade Cecil Parkinson, in March 1980, followed by a trip in November by Peter Blaker from the Foreign Office. These were reciprocated by East Germany sending Gerhard Beil, its state secretary for foreign trade and its minister for machine tools, Dr Georgi.

Though a commitment to trade exists at the top and the reactions to the fair are unrevealing, the trade figures are not much more help. 1980 figures show that the UK exported £93.6 million to East Germany and imported £88.1 million. These figures are distorted by UK exports of silver amounting to £40 million, countered by silver imports of £11 million.

Although overall trade with East Germany showed a £5.5 million surplus, the balance of trade in manufactured goods was considerably in the East Germans' favour. As a UK Department of Trade spokesman said: "Nobody knows what is going on."

EAST GERMANY

The major data processing presence, with a claim to have over 40 new developments on display, was the East German VEB Kombinat Robotron. (VEB stands for volkeigenbetrieb which, literally translated, means "people owned plant".) According to a Robotron handout: "Our combine is represented by 70,000 workers . . . with millions of products and projects exported to more than 60 countries."

Some 70% of Robotron's production is exported (most to the Soviet Union), the majority through an organisation called Robotron Import/Export. Only a small proportion reaches the UK where there are four distributors handling typewriters, office furniture, drafting equipment, and small computers and accounting machines.

At present Daro Systems Services from Oldbury in Birmingham sells the 1720 visible records computer, the 1711 electronic invoicing and accounting machine and the 1355 electronic booking machine. The 1720 sells at from £4,500 upwards and is supplied with a 100-cbps matrix printer, from 2K to 32K of storage and Daro software for invoicing and accounting work. There are 200 installed in the UK.

Pride of place on the Robotron stand went to three prototype office computers, the A5110, the A5120 and the A5130. The 5110 is a keyboard and daisy wheel printer with a small alphanumerical display which is recommended for the issuing of vouchers. A variety of PROMs are promised, as are several form feeding options.

The 5120 and 5130 are supplied with 24 x 80 screens. The former is intended for screen-oriented data collection and processing and has 64K-bytes of memory and a choice of floppy discs or cassettes. The 5130 is said to combine the applications of the other two models and is supplied with a printer. It takes up to eight 256K-byte floppy discs.

All three are based on the K1520 microprocessor and the majority of components and peripherals are East German. Full hardware and software compatibility is offered. They are due for volume production later this year and it is expected that they will be marketed in the UK. If the prices are right and the customers are assured of support, they should do well.

More sophisticated is the A6401 system which takes up to eight disc memories or mag tape units. Its 1620 microprocessor is billed as a 16-bit device from Robotron but it is actually two eight-bit chips manufactured by VEB Kombinat Mikroelectronik.

The computer has compilers for Fortran and Cobol, an interpreter for Basic and a range of cross software. It can be used standalone or can be connected to the 5110 and 5120. A ticket reservation system with the unfortunate acronym of ARS/E was also on display.

Robotron is looking to extend itself in the OEM market with several products. These include the 1152 and 1157 serial printers, the TSD 16 thermal printer mechanism which works at 2 line/sec, a 35 to 40 character/sec daisy wheel mechanism, several VDUs and the K5200 cassette drive conforming to the ISO 3407 standard.

Attracting much attention was the EC1055M mainframe. The "M" suffix indicated a matrix module permitting floating point operations 10 to 50 times faster than was previously possible. At the show it was running under OS/MVS with 4 megabytes of main store, 100 megabytes of disc store plus mag tape units and card readers.

The 1055 was first exhibited in Leipzig in 1978 and is the biggest machine in the unified range, falling between an IBM 370/148 and 158. Though compatible with IBM's 370s, it is now somewhat of a Puffing Billy by the latest Western standards, but still finds a ready market within Comecon. There is no intention to export it to the West.

A bat and paddle TV game based on a 4-bit micro also attracted the crowds. Selling at 550 Marks (around half the average East German monthly wage, according to the British Overseas Trade Board), it was on the VEB Combinat Mikroelectronik stand. This combine has 50,000 employees and concentrates on the manufacture of components. There were two 8-bit micros on show, the p-channel U808D and the n-channel U880. These, said a Mikroelectronik representative, are incorporated into the new Robotron office computers.

SOVIET UNION

The huge Soviet pavilion featured the IBM 360-compatible EC1060 with a full range of peripherals.

A Russian representative explained that it was not a microcomputer and went on to elaborate on the EC concept of compatibility across an entire range of mainframes. The Soviet Union manufactures the EC1020,22,30,35,50 and 60, East Germany the EC1040 and 55, Hungary the EC1010,11 and 15, Poland the EC1032 and Bulgaria the EC1020,22,30 and 33.

The EC1060 is the largest of the range. Main storage is from 2 to 8 megabytes and there is a maximum of 16 megabytes virtual memory. It works in byte multiplex and block multiplex modes and is marketed with a full range of peripherals.

Other products on the Russian stand included the Iskra 1256, a 16K-byte microcomputer system and the EC7920, a set of mapping facilities. There is no intention to export to the West.

The Soviet representative said the last IBM kit to be bought was a 148 for the Olympic Games and that imports had dwindled to a trickle since Afghanistan. There was virtually no direct American presence in Leipzig.

Not included on the Russian stand were the PDP-11 compatible CM models nor any micro products.

POLAND

A gloomy Polish representative of Mera, the state computer manufacturer, said that the economic crisis had brought about a halt in the production of the ICL-compatible Odra mainframes. Production of the EC1032, which was introduced in 1975, had also been cut back from a planned 100 to 20 last year.

Optimism focused on the Tele JS teleprocessing subsystem which was being exhibited linked to the East German EC1055. Fifty have been ordered, and once it is fully tested it will be introduced to the West.

Its basic component, the EC8371.01 processor, has an instruction set of 51 instructions, five interrupt levels, an operation of over 500,000 instructions/sec and a capability of operating at up to 39 Kbps. It is synchronised by a 10-MHz clock which, through a divider circuit, produces a 100 nanosecond clock pulse and a 1.6 microsecond machine cycle.

HUNGARY

The Hungarian stand featured products from Videoton. Included were the VDT 52106 and 52120 VDUs and some printers manufactured in co-operation with Data Products. The R11 system, which equates to the EC1011, featured remote job entry terminal emulation. The R10 (EC1010) is also made by Videoton and is the smallest such system in Comecon.

YUGOSLAVIA

Included on the Yugoslavian stand was the Iskra TI-30 data acquisition and control system. Unrelated to the Soviet Iskra machine, it is based on the AMI S6800 family of components and has 2K-bytes of RAM and 8K-bytes of PROM. It has a system capacity of 31 remote stations for each channel and the remote station capacity is 512 single or 256 double commands, 256 set point values and data rates up to 2,400 baud.

Leipzig's city centre is a mixture of old and new styles.

Lord Trefgarne (in glasses) the Parliamentary Under-Secretary of State at the DoT, at the Robotron stand.

Robotron's EC1055 mainframe is the largest East German contribution to Comecon's IBM compatible EC range.

Setting up your own company – 4

How merchant banks can help find the money

IN this fourth article on the financing of small computer companies we look at more sophisticated sources of finance and financial advice than those previously considered. In principle, this means looking at the services of merchant banks and finance houses.

A number of these institutions have recently been active in obtaining finance for computer companies, and the merchant banks seem once more to be playing their traditional role of finding finance for British business.

David Lowe, an executive at Robert Fleming, the merchant bank responsible for the private placing of £2 million worth of shares for Digico's parent company Sparaverne Investments late last week, made the following points about the services of a merchant bank:

"We, along with other merchant banks, have a special interest in the new technologies, especially in the computer field. This is partly because we see the new technologies providing good investment opportunities, and partly because we have a historic role as advisers and providers of finance for small and growing companies.

"However, we see our real role as providers of advice and assistance as a company moves from one phase of its development to another. When raising funds for small companies it is vital to get right the match between investor and company, and this is where the quality of advice can be measured by a company asking itself if it is confident that the advice it has been given is in its own long-term interests.

"As a merchant bank we can either sell shares to institutions with which we have historic links, or arrange private or public placings of shares:

"Small companies should not be afraid to approach merchant banks although a certain amount of re-education is needed between small computer companies and investors. Computer companies should come to the City with an open mind, and try and appreciate the investor's point of view as well as their own needs."

A point David Lowe did not make is that for a small company interested in the booming computer markets of Hong Kong and Japan, Robert Fleming and Co has two of the oldest-established banking offices in the Far East – one in Hong Kong with Jardines, and the other in Tokyo. Connections such as these can be invaluable for contacts in those markets.

One of the most successful recent launches of a relatively small computer company on the Stock Exchange was that of ACT.

The company, based in the Midlands, was first introduced to the world of high finance by way of a limited placing on the Rule 163 (2) market. The 10p shares were offered at 95p, and within weeks had risen to 180p and finally 505p. At the moment the shares are trading at 142p (following a 2 for 1 scrip issue).

When ACT moved from the restricted 163 (2) to the full Stock Exchange listing which the company now enjoys, the shares were placed by Singer and Friedlander, an old-established merchant bank in Cannon Street.

Sir Timothy Harford was the Singer and Friedlander executive closely associated with the ACT placing, and he made the following points about a small computer company which might be thinking about approaching a merchant bank: Firstly, a small company should not be afraid to approach a merchant bank, but should do so before the need for finance becomes acute. It makes it much easier for a merchant bank if there is a warm-up period during which the bank and its potential client can get to know each other. This gives the bank more time to assess the client company's exact needs. A small company should pick its merchant bank with care and not be afraid to shop around.

By way of preparation, a small company should prepare a prospectus (such as outlined in the last article of this series).

Sir Timothy said that initial contact to a full listing, assuming a company approached a merchant bank while its profits were still under £200,000, could take three years.

The kind of profile a merchant bank would look for in an ideal world – which Sir Timothy readily admitted was seldom encountered – was a minimum of three years' trading, preferably five years and profits in the region of £200,000. This should not be seen as altering his initial advice to get in touch early, but was an indicator of the point at which a merchant bank would be most able to help a small computer company.

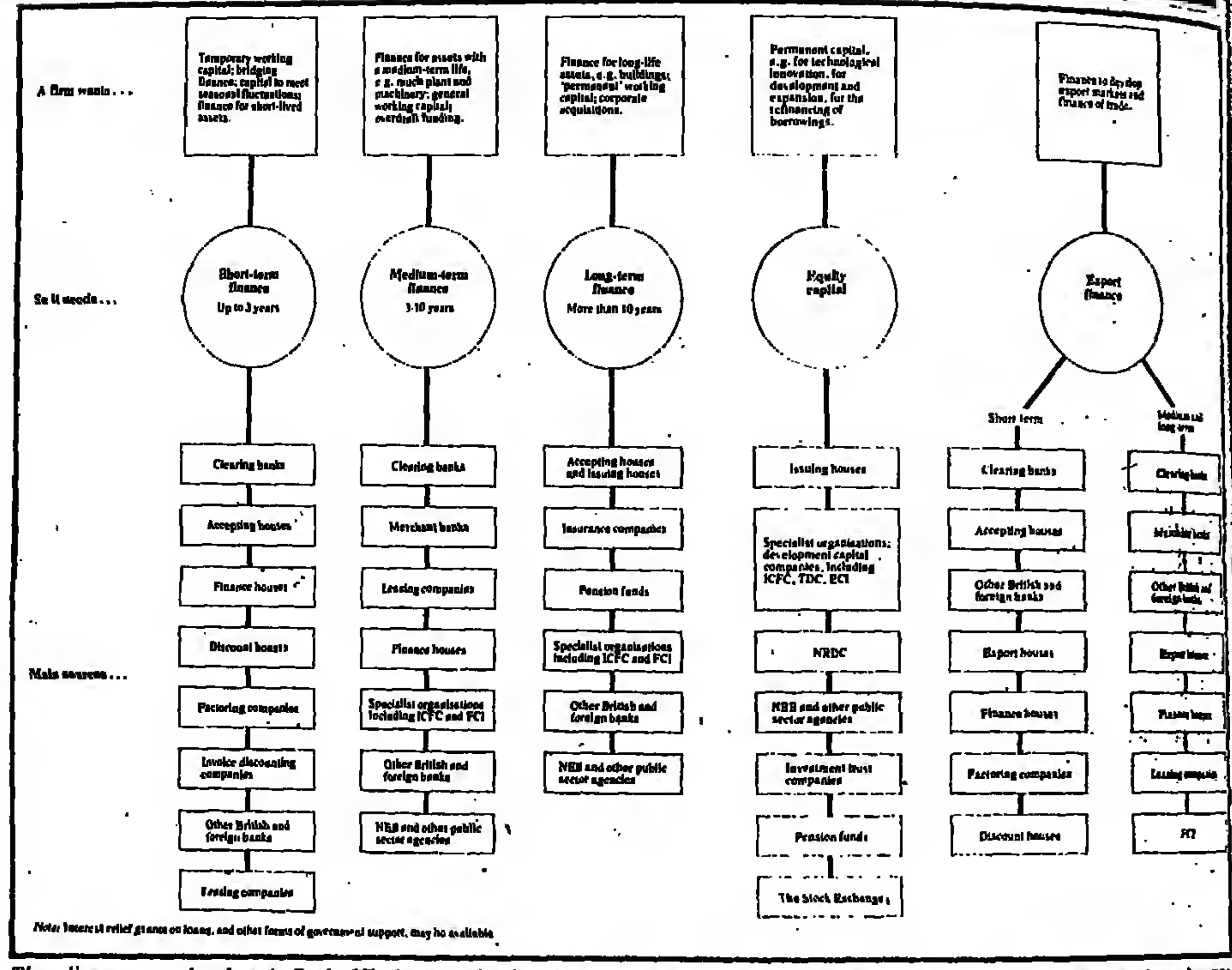
> 'A merchant bank is usually better geared to understand difficulties and to produce a viable solution.'

Sir Timothy observed that because most computer service companies were light in assets such as properties and consisted mostly of people-type assets, this made them a difficult proposition for the conventional, clearing bank type of lending.

For that reason a merchant bank was usually better geared to understand the difficulties this problem posed and to produce a viable solution to the financing needs of a computer company. As an alternative to the kind of assets in which the clearers like to invest, a merchant bank would look to a computer company for growth prospects and for high profit margins.

Finally, the changes made in the Budget would have an impact if the provisions of the Finance Bill were enacted and it became possible to charge off investment in specific companies against marginal tax, up to a limit of £10,000.

The Bank of England has produced a useful booklet from which the above guides to types of finance has been produced. Called "Money for Business," it lists all the sources of money available in the UK other than private sources. The booklet has a special section dealing with development capital and specialist financing, which will be of direct interest to small computer companies.



These diagrams are taken from the Bank of England's publication "Money for Business," available from the Bulletin Dept, Bank of England, London EC2

Honeywell reports sales up 32% in Italy

HONEYWELL ITALIA, the Italian subsidiary of Honeywell Inc., has cashed in on the booming Italian computer market and turned in sales up 32% to $296 million for 1980.

Honeywell Italia, which controls 20% of the Italian data processing market, ended the year with the biggest order backlog in its history.

Profits of the company, however, were $8 million, almost static over the two years 1979/80.

The company, which last year spent $24 million on R&D in Italy, says that it expects sales for 1981 to be about $340 million.

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CB World
April/May number out now 60p

by Kevin Cahill

Shadow over interest charges on possible £200m extra ICL loans

ANALYSIS of ICL's balance sheet following the government's decision to guarantee up to £200 million extra borrowings shows that, even if they were taken up, the company would have difficulty in meeting interest payments on them without a substantial turnround in its trading fortunes.

The net borrowings shown in last year's balance sheet are £116 million of medium and long-term debt plus £46 million of overdraft and short-term debt – a total of £162 million. ICL's existing facilities before the government's announcement were a total £70 million for the latter category.

If the whole of this plus the whole of the £200 million available over the next two years were taken up, total borrowings would rise to £386 million by the balance sheet for the year starting September 1982.

This would have the effect of moving the company's gearing – the ratio of its borrowings to shareholders' funds – from last year's approximate 1:1 to something like an adverse 2.7:1. The balance sheet for the year ended September 1980 had shareholders' funds at £141 million.

In its general advice to investors, the Bank of England describes a sound balance sheet as one in which equity (which basically means shareholders' funds) is twice borrowings or more.

This tends to show that the loan package underwritten by the government is not what ICL needs, and the move is seen in the City as a temporary boost while a more permanent solution is sought.

The government is continuing to put heavy pressure on GEC to get involved with ICL, possibly to strengthen its executive management, which would in turn probably necessarily involve GEC taking some sort of stake in the computer company.

Some sources speculate that at least one of the objectives might be to bring Geoffrey Cross, former managing director of ICL, back into contact with the company. Cross is currently head of one of GEC's US operations.

But if ICL takes up all its potential £200 million extra borrowings a complete takeover seems unlikely – even for a company as cash-rich as GEC.

An important factor, however, is that ICL says the confidential report prepared for the government by accountants Touche Ross before the loan guarantee commitment was made gives the company a "clean bill of health". It indicates that this firm at least believes extra debt will not simply hurt the company further.

Memorex faces $13m loss

DESPITE its talk about a boom in shipments of IBM-compatible disc drives, the financial problems at Memorex continue. The company in the US has said it expects to report a pre-tax operating loss of up to $13 million for the first quarter of 1981.

Memorex hit rock bottom in the second quarter of last year with a loss of $22 million and reported an overall loss for 1980 of $29 million. The trouble then was blamed on factors like a decline in outright sales, the running down of old product lines and a decline in sales of audio and video products which account for about 20% of its turnover.

This time Memorex chairman, Clancy Spangle, blames the losses on problems like the strengthening of the US dollar, the costs of new packaging and production processes for consumer products and a slower than anticipated development of the market for eight inch hard disc drives.

Start-up loans for 100 companies

BARCLAYS Bank business start-up loan so far has been used to grant funds to over 100 companies. The fund, set up last September, has been used to provide funds to eight companies in the computer sector.

The average loan under the scheme so far has been £30,000 and total lending has been well over £3,000,000.

The business start-up loan does not require the borrower to put up any collateral other than a commitment to repay Barclays a share of the royalties on sales.

The bank expressed surprise at the volume of lending they have been able to approve under the scheme.

According to a spokesman, the bank had received a surprising number of quality proposals, particularly from the computer sector.

Package for brokers

THE City specialist software and bureau company Consultants (Computer and Financial) Ltd announces the sale of a complete Fiscal package to the stockbrokers William de Broe Hill Chaplin and Co.

The package, described as a fully integrated stockbroking control accounting and ledger system, is worth over £100,000 in revenues to C&CF.

The system will run in-house at the brokers and will be used to process William de Broe's considerable international business.

Processing of the work will be done on a 64K Ultimate minicomputer based on the Honeywell Level 6 machine, but with a special operating system.

The sale is a landmark for C&CF in the competitive field of computerised broking. William de Broe is the first of the medium-sized broking houses to take the kind of package offered by C&CF.

NEB £1m fund aimed mainly at computers

THE National Enterprise Board has launched another loan fund aimed generally at the computer and high technology industry.

The fund, with about £1 million at its disposal, aims to provide loans of up to £50,000 to small companies which have exhausted their existing sources of funds.

Interest charged by the NEB through Oakwood Loan Finance will be 2% above MLR and there will be no capital repayments in the first five years.

The loans will be unsecured, but the NEB will expect a negotiable option to take an equity stake in the company. This stake will normally amount to a right of purchase for up to 20% of a company's shares.

Where a company wishes to buy itself out of the NEB option, the cost will normally be 20% or two to three times a company's profits in the fourth and fifth years of the loan.

This loan scheme is not specifically intended to provide start-up capital, although the NEB say that start-up situations will be considered.

For start-up and venture funding the NEB would expect to provide funds through the Anglo American Venture Fund, launched at the end of last year.

The NEB says that they have already had a big response from small companies, both to the Oakwood fund and the Anglo American fund.

CW SHARES TABLE

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

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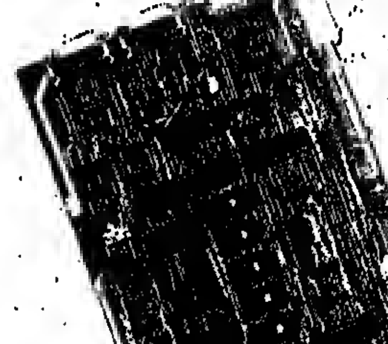

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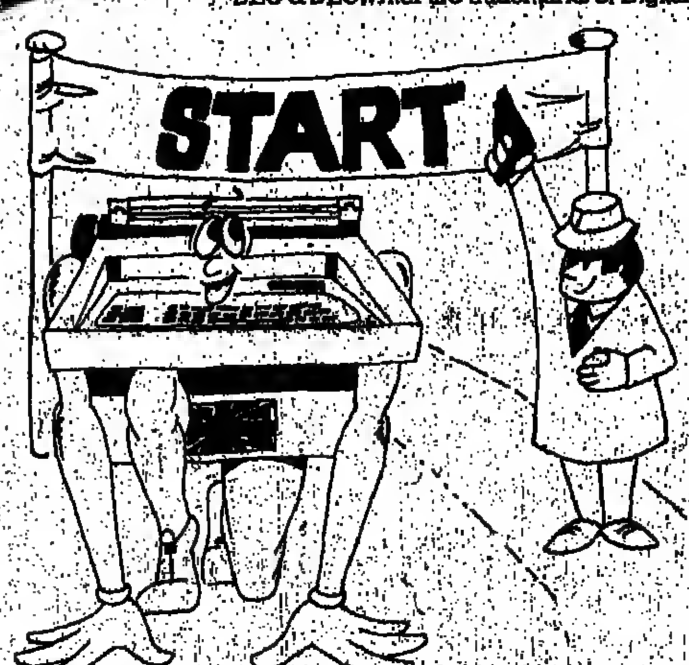

Horizontal tabs.
Top of form.
Top and bottom form margins.
Character view mode.
Character density setting.
EIA or 20mA interface.
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MICHIE'S PRIVATEVIEW

Signing off . . . and looking forward to the new wave

Donald Michie is Professor of Machine Intelligence in the University of Edinburgh.

LAST Privateview contrasted two ways of conferring upon a human or machine recipient the ability to perform a skilled task. According to one way, a causal model is imparted which enables its possessor to calculate the result of performing a given action for any given state of the task environment. According to the other way, a heuristic model maps directly from states of the environment to pieces of advice. Not discussed was any way of getting a model, of whichever kind, into the head of the pupil or into the store of the machine. Aspects of this topic will come up in the forthcoming BCS tutorial on expert systems.*

To work on expert systems the method remains that of the knowledge engineer, who programs the best truth-functional procedure he can to embody the expert's own account of each key concept. This process is marginally harder than getting blood out of a stone.

Small wonder that Ed Feigenbaum of Stanford has stated that:

The acquisition of domain knowledge is the bottleneck problem of applications-oriented intelligent agents.

Of course in a sense we knew this already. Is not one picture worth a thousand words, and one shrewd example a thousand pictures? But until good algorithms for inductive learning came along, the would-be inducer of rules from examples was like Shakespeare's Glendower:

I can call spirits from the vasty deep!

provoking Hotspur's acid rejoinder:

Aye, so can I and so can any man. But will they come when you do call to them?

Today we can at last call concepts from the vasty store. Knowledge engineering thus already enters its third phase, analogous to the phases of wheeled transport:

Phase 1: Horse and cart (direct programming of solutions).

Phase 2: Steam carriage (the "inference engine", logic programming).

Phase 3: Internal combustion (inductive inference, "programming by examples").

These topics have from time to time been ventilated in this column. They will not be ventilated longer. After unbroken enjoyment of Computer Weekly's hospitality and the excellent company of its readers, Privateview is signing off.

It is almost four years ago that Malcolm Peltu and I first concocted my role, and I have enjoyed it to the full. Malcolm was then Editor of Computer Weekly. He shared my view that important sectors of the computing front in the UK had been held back by well-meaning troglodytes of the science establishment, reinforced by timidity of management in the computing industry and a lack of information among practitioners about certain new directions.

The Trojan work of Malcolm, and his colleagues and successors on Computer Weekly, together with tireless pressure from many others of the technical Press, in industry, in university and government computing, and in Parliament has at length brought returns. Although there is far to go, the information technology scene in Britain has changed notably for the better.

Among the consequences has been the appearance in my own field of enablement chances for contributing more concretely than by holding forth from the top of a column. I mean resources to conduct research.

Given even a modicum of these, what experimentalist in today's marvellous world will not paw the ground?

If, as most do, one accepts the added responsibility to link science with tutorial dissemination, experimental work in gold-rush conditions takes all of the time a worker has. Looking to the new flood of technical opportunity from parallel architectures, inductive inference algorithms, fusion of knowledge engineering with logic programming, the potentiality of expert systems in hand-eye robotics, I also look to the excitement of joining forces with the new wave coming up and to the first wave's continuing comradeship.

My thanks to all who have kept my post-bag lively. I send greetings to new companions whom my writings have directly or indirectly brought my way, and to the many who share my conviction that through the murk and tumult, information technology can lead to a bright future, with Britain in a special role.

Donald Michie

*BCS Expert Systems Tutorial (lectures and demonstrations), London. Thursday, June 4, 10.00-17.00. Cost £30 for BCS members, £40 to others. Contact: Mr B. Muller, 12 Oaken Grove, Maidenhead, Berks. Tel: 0628 39101.

10 YEARS AGO

From Computer Weekly of April 1, 1971 . . .

DEC announced two new hardware systems for use in laboratories, a PDP-12 laboratory data processor which can accept data from up to eight instruments at one time, and the ALCHYMIST 15, based on a PDP-15/35 computer . . . The National Police Computer, designed to provide answers to police inquiries within seconds, would cost £7 million, the Commons was told. The system, to be housed in Hendon, would be linked to a Swansea computer . . . Control Data Corp has introduced the Cyber 70, and the new machines should be available by the first quarter of 1972 . . . Speaking at the opening of Datafair 71 at Nottingham, Alex d'Agapeyeff, president of the British Computer Society, called on the goverment to act to improve the climate of opinion towards computers.

FOCUS

Friendly relations among the new technology

FOR those who feel a need to keep themselves informed on emerging industry terms, a browse through recent editions of Computer Weekly would be rewarding. Superzapping, spoofing and echo checking have entered the language lists, joining such standards as bootstrapping, scrolling and scratch padding.

Also rapidly gaining ground in the generic term lists is User Friendly. Hardly any new product is now introduced without the tag "user friendly" attached, whether it be the latest banking terminal, micro software or training course. As yet the term is limited to computer equipment and services. The users are those most likely to be personally involved on a hands-on basis.

User Friendly by no means extends to such users as the company production manager, finance director or sales supervisor. Neither does the term embrace the site engineering team, especially if called out at one minute past five in the evening, nor the ops team dealing with the consequences of a head crash.

Just about the least friendly user is the DPM who traditionally views his configuration with a mixture of awe, respect and apprehension. Kicks rather than pats are the acknowledged methods of treating the reluctant printer, grotty disc drive and temperamental CPU. Affection is more likely to be shown to the shift leader who, despite immense odds, managed to produce the monthly turnover statistics only 24 hours late, or to the senior programmer for surrendering yet another weekend for the good of the computer cause.

The banks, it seems, are rapidly moving towards user friendly automatic tills and associated visual displays. But it is doubtful if the customer will get a user friendly message along with the news that the user's account is in overdraft mode and no further funds will be available. Any further attempt to extract funds will meet such user unfriendly devices as steel-lined door traps and electronic shock key buttons.

Meanwhile, many micro users would agree that their equipment is far from being user friendly. Without an advanced degree in physics and applied mathematics, users could find themselves at a dead end – or loop. They quickly find out that the dead end also applies to electronic games which appear to be heavily geared against the novice user.

In no way can the average micro software package be called user friendly or the accompanying flexy disc. Apart from a mandatory background in micro-programming and coding (of a BCS Fellowship level) a fully comprehensive knowledge of accounting principles and procedures is essential, plus all too often a conversion kit to translate the package from basic US assembly language to basic UK.

□ □ □

User friendly equipment and systems do not apply to such items as VDU screens which, according to some industry watchdogs, should bear a label suggesting that prolonged use could damage the user's health. Certainly much computer peripheral and ancillary equipment is far from user friendly. Guillotines, decollaters and double-barrelled printers and chains constantly lie in wait for the unwary finger, tie or long hair.

Other non-friendly areas are the broad mass of consultants who tend to view the average DP installation with a mixture of trepidation and hostility.

Few if any DP operations are regarded by consultants as being in the user friendly category, which probably accounts for their reluctance to get too close to the scene of action, preferring to consult from a distance – or through the communication lines of senior company management.

Just about the only truly user friendly group is that of the competing sales teams at the time of an installation enhancement. Lunches and factory visits are generously provided, together with embossed biros and keychains.

Alan Simpson

LETTER

The Computer Weekly debate on the creation information, started on January 8 by Donald Michie and Alan Sutcliffe, continues with this letter from Dr F. J. Wright, a lecturer at Queen Mary College, University of London:

Concept of absolute information

I WOULD like to comment on some of Cliff Dilloway's assertions (CW, March 12) concerning "absolute information." The concept of absolute information seems a useful one, but whether or not it really is infinite must depend on the subtleties of the ultimate structure of spacetime, which are not yet resolved. Present evidence would seem to suggest that it is indeed infinite.

I do not accept that "Science makes an assumption about the existence of a point". The point is purely a mathematical convenience, and has no physical reality in isolation. Any physical theory formulated in terms of points could be reformulated in terms of regions (sets of points) – it is simply less convenient to do so. No physical law or theory depends on the existence of points for its validity.

The speed at which information can travel is an important issue. Information *per se* cannot travel – it has to be carried by some physical process. Information can only be received, and thereby perceived to have travelled, if it can act upon a receiver. This action requires energy to be transferred from a transmitter to the receiver. For example, we only see things as a result of light travelling from them to our eyes. In our eye some of the photons of light energy are "transliterated" (to use D. P. Moody's term) into nerve impulses, which are then perceived by our brains. This information travels (nearly) at the speed of light in free space c. If I convey information by shouting, or throwing stones, it travels much slower, but still requires energy (sound energy or kinetic energy, respectively) for its propagation. According to Einstein's Special Theory of Relativity, the speed c is an upper limit to the speed of propagation of matter or energy (at least as we know it), and this limit has not yet been convincingly shown to have been violated.

The fact that "absolute energy exists everywhere" does not imply that it got there by travelling at infinite speed. Moreover, it does not imply that if the information in some region is changed, this change will be communicated to neighbouring regions at infinite speed. The information that a stone has hit the surface of a pond travels out at finite speed, carried by a packet of water waves.

Clearly, it is important to distinguish between the quality of information as received at some point, and the physical process of information transmission which got it there. This is the sense in which Wiener's comment (quoted by Graham Hatcher) applies: "Information is information, not matter or energy." It is perhaps analogous to the distinction between, respectively, software and hardware. Shannon's communication theory or information theory is, in fact, only concerned with the quality of received information and the physical communication channel is represented in abstract by its bandwidth, noise level, etc. The theory applies equally to electromagnetic channels, acoustic channels and stone throwers.

Finally, may I suggest that much of the present confusion would evaporate if people reverted to Shannon's original term "entropy" for "measure of information". This would preserve the distinction between the precise mathematical meaning of "entropy" and the looser everyday meaning of "information".

Dr F. J. WRIGHT
Lecturer
Queen Mary College,
University of London.

DOWNTIME

The power of mere humans. . . .

I DETECT a trend. All over the land, people are discovering a wonderful new commodity – human power.

I noticed this most recently in the market at Camden Lock (which considering its look of something left over from the trendy Sixties is hardly the place one would expect to find the latest innovations).

Anyway, there in the passageway was a juke box with a difference. One deposited 30p (the Camdenites aren't behind the times in keeping ahead of inflation) and slid the pointer to the desired song title. Then the front of the machine, which looked remarkably like it was made of cardboard, swung open, and a human head appeared to render the song.

One might feel that the artistic merit of what ensued left something to be desired, but I was struck by how many systems problems were solved by the new technique. The same mechanism that does the singing also receives the money and checks it is sufficient, and can also issue user error messages. One such message came out after a request for a particular song. A suitably Dalek-like voice croaked forth: "That one is broken. Please make alternative selection."

It seems to me this is technology with enormous potential, especially in these times of scarcity of raw materials and energy coupled with unemployment. Forget all these silicon chips – let's start building computers with human beings inside.

Unemployed maths graduates could be the CPU, and those music hall miracle memory men could act as the store. For the printer you could use anybody who happened to have good handwriting.

Retired RSMs would handle the communications, with the length of a barracks square a perfectly acceptable distance limitation in these days of retrenchment. The surplus law students we are producing could constitute the operating system, handling contention and the like, and your experience of the British legal system will reassure you that they will work just as fast as VME/B.

British Rail have been unable to confirm or deny reports that they are to introduce triremes to take over the cross-Channel ferry service.

Blame it on the system

A LADY has written to The Times complaining that her local department store charged her 13p instead of 12½p for some binding on the grounds that their computerised tills were incapable of handling halfpennies.

We've heard lots of excuses on the lines of "Now that we have a computer we can't . . ." but inability to do arithmetic is a new one!

I was in a takeaway food parlour the other day and while waiting for my comestibles I mentally added up the prices as displayed on the wall. When the till was rung up it displayed 1p more than my total. I queried this in my bolshie way, to the utter bafflement of the lady assistant. Eventually the manager issued forth and explained without hesitation, "Oh, it's a rounding error on the VAT."

Good for him for grasping this subtle absurdity, I thought.

He graciously waived the extra penny charge, but I was left wondering why it is that these little variations, that most customers won't notice, always seem to benefit the shop?

Checking up on equipment

I NOTICED in Victoria Station the other day, high up on the roof columns, a whole battery of closed-circuit television cameras. But no, this was not the first manifestation of the arrival of Big Brother, brought about by the failure of the government to introduce data protection laws. The cameras were pointed not at the public but at the train indicator board.

This is a clever Space-Age automatic affair with the station names written on those falling flaps which I am amazed work at all. Apparently they often don't. The TV cameras [illegible] the controller [illegible] actually saying [illegible] told it to say [illegible].

I have a [illegible]. Why don't they have a [illegible] system for displaying the [illegible] to the passengers, and a mechanical system with moving mirrors to let the operator keep an eye on what the TV is saying?

Personally I preferred the old displays at Victoria that used gargantuan punched cards and [illegible] rods that poked through the holes to operate or not the individual station panels. I wonder whether the cards included parity bits?

Chub

ComputerWeekly
Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS
Thursday, April 2, 1981

Coming to terms with the East

EAST GERMANY has the highest standard of living in Eastern Europe. For the price of rigid social and economic controls, it has maintained a 4% growth rate and, with computer companies like Robotron and Kombinat Mikroelectronik, is establishing a technological base which could well meet the West head-on by the end of the decade.

Since its formation in the aftermath of the Second World War, East Germany has faced East while keeping an eye on the West, an eye which is alternately worried, envious and censorious. Now, as the vigour of its enterprises is increasingly open to testing on the open market, its attention is being pulled West. The growth in trade through the Seventies is evidence enough of that.

The present priority remains for the East Germans to go further East in search of its major export markets but, once the products and the marketing are fully geared to more directly competitive ways, that priority could be redefined.

Although by no means an exact equation, more trade means less social control, so one effect of a commercial turn to the West would be a freer exchange of ideas and a greater freedom of movement for, at the very least, a few more East German business people.

In the mass of propaganda from both sides, it is sometimes hard to determine the truth but it is certainly difficult and different doing business in East Germany. Wealth is created according to different imperatives and is thus also exchanged according to a different set of rules. Where, supposedly, there is a general expectation that UK companies are geared to making a profit, the East Germans take a Socialist view to the process of production. Our reporter, who spent a week at the Leipzig spring fair as the guest of Robotron, was told: "The aim of technology is not playing around or to meet the needs of competition but is aimed at raising the economy."

The East Germans run a closed and protected economy which has stayed as inflation proof as any in the world. It has a policy of importing only what can not be produced within its borders. There is, to put it mildly, a hard currency shortage which leads to a strong pressure for barter, counter-purchase and compensation trading.

Time and again there is an apparent inability to quote prices. There were constant British complaints in Leipzig about the weight of bureaucracy, long delivery times and the difficulty in making the right business contacts.

At governmental level there is, on both sides, a willingness to talk about trade, but at less exalted levels it is often difficult to start negotiations or even to know who to start them with.

A good deal of marketing persistence is needed in trading with East Germany and much preparatory work is necessary. But there are profits to be made. In the words of one UK salesman: "It's easy. All it takes is patience and hard work."

Take your pick!

SO a distinguished assembly of economists have added their voices to those telling the government that its fiscal policies will lead to disaster. They do not, needless to say, include any of those no less distinguished economists who are on Mrs Thatcher's payroll or reading list.

To those in business and industry who are fully occupied with trying actually to create wealth, this extreme variance in opinion between members of a supposedly scientific profession can only appear comical.

Imagine the reputation the computer industry would acquire if approaching one consultant elicited the response: "You must immediately sell your little computer and buy a Cray, or your company is headed for the knacker's yard," and the next consultant affirmed with equal confidence: "You must replace your small computer with Hollerith machines or your firm will sink beneath the waves."

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by R. Trevor Wilson of Wembley, who wins [illegible].

"Our division of Computing and Statistics requires a Senior Data [illegible] to operate a DEC 2060 with an additional PDP [illegible]. Experience of operating in a time-sharing (particularly [illegible]) environment would be a distinct advantage."

Recruitment advertisement in the Wembley Observer.

LETTERS

User group bans illegal copying

I FEEL obliged to answer certain points raised (CW, March 12) in connection with software theft, and to rise to the defence of user groups. Certain of these comments were, variously, wrong, misleading, grossly exaggerated, and arrogant in the extreme.

Alistair Kelman claims that "most user groups are nothing but thieves' kitchens" and advises that we work toward closing them down. If Mr Kelman would take the trouble to visit a few groups, such as the one to which I belong, IPUG South East, he would see little if any of the activity he so deplores. Instead, he would find a keen group of predominantly professional users (65%), gathered together to obtain the benefits of speaking collectively where appropriate, to render mutual assistance, and to see demonstrations and lectures.

He would find, in the case of IPUG SE, that the constitution expressly forbids illegal copying, on pain of dismissal from membership. He would realise that a very great deal of beneficial advertising and education occurs at the meetings, and would find nothing to complain about at all.

His statement is obvious rhetoric, yet it could be damaging, and Mr Kelman really ought to think twice before biting the hand that feeds him.

Ian Litterick comments that "copying is a cause for concern as for every copy borrowed or made for a friend, the owner loses a sale." It is not clear whether he means "borrowed" as in "stolen". There is clearly nothing wrong with borrowing, and I reserve the right to lend to a friend any item which I own. It is the making of a copy which is the putative theft. In the interests of clear thinking it would be better to avoid such euphemisms and to use the word "theft" when that is what you mean.

However, my main reply to Mr Litterick is to dispute his claim that there is always a loss. Very often, the recipient would not have purchased the program had he not been given it, especially where the price is high and the need low, as would often be the case for a hobbyist, or in the case of copying large numbers for use in the same organisation, where the total price would be prohibitive.

In both cases, there is no loss to the owner. There may even be gain, due to advertisement, if the stolen copy is shown around.

As for the claim that Visicalc has been copied to the extent of 2.5:1, attributed to Printout on your front page, I find this very hard to believe; unless of course you simply refer to safety copies of the disc alone, made for the use of the purchaser, which is not wrong, though it may well be against the terms of a licence. Visicalc is one of the best protected programs ever written, and would require the use of an EPROM copier, or many man weeks of effort by a real expert to de-ROM the program – hardly "an hour's job for a 15-year-old".

If either type of copying is being carried out by organised criminals, for sale, then it is to be deplored, but otherwise the alleged huge extent of the problem is difficult to believe, and, again, smacks of rhetoric.

Mr Kelman and his ilk should realise that if they are making their living out of trying to protect software, they also have a responsibility to the users of that software. The essence of personal computing, compared to the bad old mainframe days, is freedom, and users resent being told what to do in their own offices, living rooms and club houses, with goods for which they have paid. They resent having to put up with poor quality, overpriced, under-supported goods, and with the transatlantic price differential.

The software authors resent being ripped off by the entrepreneurs, who then scream about software security on behalf of the authors. Did you know that the authors of a well known game selling at £7.50 receive only 10p per sale!

There are plenty of more deserving targets for Mr Kelman's wrath than the one he has chosen, and many reasons why he should adopt a more reserved line in this particular area.

B. J. BIDDLES
Member of IPUG (Central)
committee member IPUG SE
Sec of North Kent ACC.
Biggin Hill,
Kent.

'I applaud the software pirates'

YOUR headline and leading features on software piracy almost duplicate similar complaints in the video press. Perhaps it is wrong of me, but they bring joy to my heart. I applaud the pirates and say the trade has got no better than it deserves.

Perhaps it is sour grapes on my part when I say that as a copyright consultant I have published articles and warnings dating back some 16 years in various magazines. There was a resounding blank response. To do them justice the respective editors saw the problem, but the fact is the trade could not appreciate it. And what is more, it was too greedy.

Now that companies are hit by falling sales the moans and shouts of unfair competition are beginning to go up. Yet few of these companies actually manufacture anything. Like myself, they sell expertise that is printed out. In this there is a parallel; no software house would pay me a high fee to tell them about protection because they feel the "law" should do it – they do not see why I should get a "rake-off" from their work.

They are greedy to the extent that they cannot appreciate that I (or other consultants) could have saved them a lot of money in the long run. There are, of course, a lot of solutions to the piracy situation and I do not see why I should give that information away for nothing.

The other side of the coin is the consumer. Where did the software house get all its expertise? It did not just grow on trees. Behind all of it is the accumulation of thousands of man-hours of generations of all manner of workers.

As is so often the case, big business forgets the debt it owes to society, to the society in which it operates and from which it draws its profits. The pirate equalises the situation by bringing down the price of the product, an option open to the trade generally.

I now seriously doubt if copyright protection is right or if some more social solution would not be better, one that benefits everyone.

BRIAN W. HAINES
Management Consultancy Services
London NW1.

Generous companies

IN ORDER to do justice to Olivetti and other companies, may I comment on Mr Monk's letter (CW, March 12)? Our two machines have given very good service and, in the light of my previous experience of comparable machines, have been remarkably free from faults, despite negligible maintenance. Further, our information on the non-availability of manuals from Olivetti was obtained informally and not officially and, on publication of my original letter, a set of manuals was received from Olivetti with great rapidity.

About this time also the company which donated the machines sent us an engineer "for a couple of hours".

I do not wish to decline a place in Mr Monk's utopia but we in the schools must recognise that many companies are already very generous especially when we let them know our needs *without* implying that we have any right to receive goods and service free.

A. W. BAILSON
Gillott's School,
Henley-on-Thames.

Puzzles must cease!

AS industrial design consultants we naturally feel the need to read Computer Weekly. Indeed we find your paper the most interesting and stimulating of all the magazines and papers that come through our letter-box each week.

However, I must ask you to cease publishing your Puzzler feature each week.

No doubt you are well aware that designers of our particular breed have sensitive and delicately balanced talents.

These puzzles, which are no doubt set to satisfy the perverse and extraordinary aptitudes of computer programmers, not only waste a great deal of my staff's time, but also have disturbing mental effects.

If our country is to pull together, if industrial design is to have its urgently needed impact, and if the nation is to prosper, these puzzles must cease!

DAVID STUBBS
Leighton Buzzard,
Beds.

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

Not mentioned

WHY does the occupation of technical author receive no mention in the authoritative Computer Users Year Book? Each year computers are being used by more and more people who know less and less about computers. Complicated software causes total bewilderment for these non-technical users.

GREGORY ADAMS-TAIT
London W2.

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PROGRAMMERS PAGE

This week Michael Hunt, of MSA International Inc, urges less attention be paid to clumsy in-house software

Package up all your accounting troubles

IN the 1960s most mainframe systems were cost justified primarily on the basis of expected benefits in financial and accounting applications. Now, however, the computer is rightly being regarded as a corporate resource which must earn its bread and butter in a variety of activities that are at the core of an organisation's success, such as order entry, production management, stock control and customer support systems.

As the price of computing power has fallen and as the benefits of online systems and distributed processing have grown, the DP department has come under increasing pressure from line managers to satisfy their particular needs. At the same time, the traditional financial accounting tasks have to be maintained through a variety of hardware upgrades and legislative changes.

Scarce DP resources can be tied up in wrestling with accounting software that has become clumsy and difficult to modify as a result of years of ad hoc development. So DP managers throughout the world are growing increasingly aware that their resources should be focused on more front-line applications.

The solution found by many is to package up their financial and accounting problems into good, well supported software products which free staff to work on new and more urgent developments.

Some long-in-the-tooth DP managers might regard this approach with a little scepticism. At an early stage in their careers, they might have had their fingers burnt by a software product which offered the earth but delivered a handful of rubble.

In the early days, hardware was expensive and there is no doubt that many early software products failed to meet real user needs. In addition to being relatively expensive compared to in-house development, they were poorly designed and inflexible. The users either had to modify their procedures to fit the straitjacket of the product, or a costly development would have to be entered into to "tailor" the product to particular circumstances. This tailoring often negated the whole benefit of using a standard off-the-peg solution.

The software product picture in the 1980s, however, has changed significantly from a decade ago. The changes have meant that software packages are now accepted as an intrinsic part of the DP armoury rather than as a branch away from mainstream developments.

A recent survey by the Association of Data Processing Service Organisations in the US found that in 1979 only 5% of installations used proprietary software but that by 1985 this figure will explode to about 95% of installations. Although the US has led the use of these products, the same growth pattern is being experienced in Europe and the rest of the world.

Michael O. Hunt is international vice-president of MSA International Inc.

What has led to software packages developing from being an option of interest to a minority of DP departments to its new status?

There are five main reasons: Growing pressure on DP resources; new economic forces; better software design; the growing maturity of the suppliers of software; and, in accounting software, the need for reliable auditing controls.

I have already highlighted the pressures familiar to every DP manager: Rapid technological changes, particularly in hardware, demands for the implementation of new applications and shortage of skilled staff. Any product that can satisfy a particular applications need, particularly in routine tasks like accounting which need regular enhancement and alternation, is good news to the DP manager. It means that computing power should be able to be applied to new areas and should therefore assist in fighting the battles of our current tough recession.

The economic factors that have tilted the balance towards software products have also been well rehearsed in the computer industry. Hardware prices have tumbled, while software and people costs have gone up.

When hardware prices were relatively high and software bundled into the hardware cost, it was difficult to justify significant extra expenditure on a separate software item. Given the relatively low cost of software development at the time, it was easier to justify expenditure on in-house developments, particularly as the software products market was suffering from some serious teething problems.

From the time IBM unbundled software in the early Seventies, software became a more clearly identifiable item. Now software is seen to be a major part of total systems costs. Even senior non-DP managers have become aware that software is a hard cost, although it is an "intangible" commodity.

Any saving in software represents a far greater cost benefit now than it did five years ago. From our experience at MSA, we estimate that a good general ledger accounting package should cost about 20% of the money that would be invested in an in-house development when staff, user management time, design, testing, and integration, etc are taken into account.

The main fear with software products is that a generalised system will be less efficient than one tailor-made to specific needs. There are two decisive factors in determining whether such fears are justified: the uniqueness of the application and the design of the software product.

If the application has many characteristics unique to a particular organisation's operations, then an in-house or custom-built system is more likely to be justifiable. A clear distinction must be made, however, between variables that can easily be parameterised in a general system and more fundamental characteristics.

Provided a software package is designed from scratch so that users can tailor it to specific needs by choosing simple parametric options, then it is possible to turn a general system into an efficient tailored solution for certain applications. The MSA General Ledger and Financial Information and Control System, for example, has proved to be applicable in over 30 countries, despite varying fiscal and legal requirements.

The use of parameter-driven software means the user can select specific options without requiring any software rewrite. Before selecting a software product, the DP department should work closely with the end user to ensure that a sufficient range of options is available to meet practical needs both now and in the future.

The potential for long-term development is also an important design criterion, particularly now that online and distributed processing is becoming more attractive even in the strongholds of batch processing, like general ledger accounting. A packaged solution should be capable of extension both in terms of adding new capabilities and in being integrated with other related applications.

User perceptions of applications software have matured in the last few years at the same time that the software products industry has grown stronger and extended its user base and range of experience. Users and DP departments should now be able to articulate their evaluation criteria for software products more accurately and comprehensively in the likelihood of finding suitable suppliers.

These criteria should, of course, cover factors such as the level and range of support and training offered, the financial viability of the supplier, size of existing user base, investment in future development, etc as well as questions about price and performance.

> Any product that can satisfy a particular applications need, particularly in routine tasks like accounting which need regular enhancement and alternation, is good news to the DP manager.

In evaluating performance, it is vital that the end user is involved to investigate applications' practicality and flexibility as well as the DP department's view of the systems and technical features.

If the evaluation is approached in the serious, systematic way that would be taken to an equivalent hardware or systems investment, it should be possible to avoid the major pitfalls, such as the superficial lure of the "least cost solution". Just because a software product has the lowest price tag does not make it the best long-term solution. Suppliers who invest a satisfactory level of support and ongoing development will reflect these costs in their pricing strategy.

The least cost solution, on the other hand, may have been achieved by cutting out the underlying support structures that are so important in a product with a lifespan of many years.

In financial and accounting applications, the need to maintain satisfactory auditing controls has been an important influence in promoting the use of well supported packages. Auditors would rather deal with a system they know and have gained experience on rather than try to instil audit discipline in a system which does not incorporate good controls in its basic design.

For the DP [illegible] therefore, [illegible] portant [illegible] tackled by a [illegible] ble software su[illegible] leasing skilled [illegible] areas where [illegible] more demanding.

For senior [illegible] ment, software [illegible] mean that the [illegible] of computing [illegible] directed at a [illegible] targets rather [illegible] deal of costly [illegible] to be wasted on [illegible] creaking accoun[illegible]

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PUZZLER

A COUPLE of years ago I discussed the "prime-sum" 567, which is the smallest total that can result from forming primes using the digits from 0 to 9 once only. (The two possible sets are: 2 + 3 + 5 + 67 + 89 + 401, and 2 + 5 + 7 + 61 + 83 + 409.)

Now, an acquaintance informs me that this total [illegible] to 207 if the "once [illegible]" is removed, to allow [illegible] digits to be present, [illegible] of the ten from 0 to 9 [illegible] least once.

Finding the app[illegible] primes, to sum to [illegible] nice little problem for [illegible] column. See page 39 for [illegible]

OP SPOT

by Paul Fisher

Sixty ops who run the roll-call of a nation

WILLIAM the Conqueror did it and called it the Domesday Book. Since 1801, it's been done at the beginning of each decade, with the exception of the 1940s. This year the forms have already been handed out for completion next Sunday April 5, and collection by the following Thursday. Census day is with us again and we all have to submit ourselves to the big count.

In the words of the 1800 Census Act, the aim is to take "an account of the population of Great Britain, and of the increase or diminution thereof."

Times have changed and that account has become more exhaustive. At the computer site in Titchfield, Hampshire some 60 operations personnel will be tending the processing of a mass of information.

The 1911 census saw the introduction of punched cards and of mechanical sorting. The 1961 census was the first to be computerised and by 1971 an ICL 1904A was the workhorse. This year two ICL systems are coping with the load.

The census collects information on everybody in the country. The current form contains 21 basic questions, which is eight fewer than in 1971. Over 50 million heads are being counted, along with the dwellings they live in, the way they get their daily bread and the way they travel.

Census information is particularly useful for the division of the current annual £20,000 million Rate Support Grant and local authorities are a major customer. The results will be available in full by summer 1984 although the first results will be out before 1982.

Statistics beget statistics, so naturally there is an abundance of huge numbers to boggle your mind. The total price for the head count is an estimated £44 million which, according to the OPCS, works out at 8p per person for each year since the last survey. Put that way, it sounds cheap.

More than 115,000 people will have temporary work distributing and collecting 20 million forms. Of these, 107,000 are known as enumerators, and will be paid £124. In Liverpool, a temporary force of 1,500 data preparation staff code the forms on to hard discs for subsequent processing near Titchfield.

Such is the concern for security, a smaller coding office has been established at the Titchfield site to ensure that the Liverpudlian coders do not see forms relating to their own neighbourhood.

At the peak of processing, which is reached from May onwards, once the data preparation has been finished in Bootle, there will be 60 operations staff.

Among civil servants working in DP there is a sense of divided loyalty, an uncertainty about whether they are bureaucrats or DP people. This is particularly the case with the older Civil Service hands.

Principal production manager Ron Birch has been involved with computers since 1964 and says, "I'm slowly considering myself a DP person." His assistant, Bob Dunk has been a civil servant for 29 years, the last 12 involved with computers. He says, "It wouldn't break my heart to move."

Analysts have never been civil servants, but those in the ops department are. Their grades reflect Civil Service grades and on the bottom rung is the data processor (DP) whose position equates to a clerical assistant. DPs work with special data processors and SDPs are the fully-fledged operators.

Colin Hardy is an SDP who does not regard himself as a civil servant. "Lots of us in operations think we're separate. We don't see much of the programmers and anyway – we work shifts," he says.

At present, a two-shift system is being worked for five days a week, from 7.30 am until half past midnight. The extra half-hour beyond midnight dates back several years to an agreement that a 20% shift premium is earned if an excess of four hours is worked after 8pm.

From the beginning of June, there will be a three-shift system for round-the-clock coverage. The current complement of 15 operations personnel to a shift, including file librarians, will be increased to 20 per shift.

Some 30 extra DPs and SDPs will be required from the beginning of June. Eleven SDPs (operators) have been recruited either from DPs or as volunteers from clerical officers.

A general complaint is that all are stuck with Civil Service procedures demanding a minimum amount of time in one grade before promotion can be considered.

A roll-call of the nation involves some monstrous number crunching and the computer room is so large and so packed that it makes the inside of the Tardis appear cramped. In one corner is a COM recorder, and in the opposite corner a 7903 comms processor and Racal modems servicing 28 terminals at Titchfield and the OPCS headquarters in London.

Dominating it all is rank on rank of ICL equipment – £1.25 million worth of blue grey 1906S boxes, lined up with £1 million worth of 2960. The 2960 is due to go live within weeks and will handle statistical work.

The 1906S was installed in 1975, as a replacement for the 1904A. It has 256K store and among its peripherals are 16 mag tape units. There are over 25,000 tapes with records.

There is no intention to desert tape for mass storage for, as Ron Birch says, "it is the most economical way for data to be stored in a serial fashion."

The Titchfield site, with its peculiar cyclical work flow, provides an essay in mainframe computer developments by the decade. The COM recorder shows a commitment to the latest in technology and it will be interesting to see what hardware is in operation in 1991.

The last census involved the production of 20 million cards but these have now been done away with. An Auto Edit facility means that data will be edited differently with software taking over from clerks.

A few of the ops staff who will be processing the census forms. They are (left to right): Ian Whettingsteel (DP), Geoff Shervell (DP), Nigel Slocombe (DP), Les Pumfrey (executive officer/file librarian), Paula Fauvel (DP), John Coates (higher executive officer/shift leader), Bob Dunk (senior executive officer/ops supervisor) and Ron Birch (principal production manager).

[illegible] the ICL-dominated computer room at Titchfield is an Irish [illegible] PDP-11/34, which drives a Bell and Howell 3901 COM [illegible] microfiche from mag tape. In the foreground right, is a [illegible] plates for the printers. Supplied as a package, it has [illegible] Pictured with the kit are Stuart Roberts (left) and Ian [illegible] has worked at the site for 12 years and, in Civil Service [illegible] an SDP – that is an operator by any other name. [illegible] present, is due to be promoted to an SDP soon, and [illegible] as computer workers rather than civil servants.

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DATA ANALYSIS

Making the transition from the old system to the new

Section II – Part 4

of our series describing a system design methodology

by Rosemary Rock-Evans

ONCE the database and the application have been designed, attention must be given to how the existing systems can be converted to or interfaced with the new system. This task is known as transition analysis; during a transition period both systems are likely to be run in parallel. The main stages of transition analysis are as follows:-

- Draw data models of the existing systems and hence produce definitions for the data items in the existing files.
- Identify the functions supported by the existing systems, by analysing specifications of the batch and online transactions.
- Compare the existing data with the required data.
- Compare the existing functions with the functions covered by the new system.
- Draw up a conversion strategy, which defines the interfaces required, the conversion programs required, the changes needed to existing systems and the timing of all these tasks.

First, data models have to be drawn.

In our experience, the entity model of the systems to be converted will be different from the one produced by entity analysis. This is not a sad reflection on the standard of systems analysts of the past, but is the result of restrictions which operated when the systems were designed.

> **Duplication over more than one system causes the most headaches because it ends up as a political problem.**

There is also likely to be a good deal of duplication of attribute types, and embedding of attribute types of entity types within other entity type records, simply because the analyst did not recognise that he was dealing with entity types, since his view of the business was so narrow.

In Figure 1, the existing hospital systems are shown. There is an Out-Patient Scheduling system, an In-Patient Scheduling system and an Illness Statistics system. As can be seen, "Patient" is duplicated in each system.

2. The old systems are usually written for conventional files. Because of the structuring limitations of these files, the systems analyst usually designed files which did not fully support the entity model (had one been prepared), by missing out entity types or embedding attributes within related entity types. Where entity types were missing, the additional work which resulted had to be coded into application programs or performed clerically.

In Figure 1, Theatre Sessions and Clinic Sessions are missing from the models of the original systems. This may have been deliberate or due to incomplete analysis, but the result is that no data is available from within the existing systems on these two entity types.

3. Often, a new system will encompass not just several different existing applications, but several existing implementations of applications. In other words, the functions of the systems are the same or similar, but different systems exist – usually for historical, organisational or political reasons.

In our example the Out-Patient Scheduling system has one model which covers the Hallam, Hub, Tinker and Hilltop implementations, but a different model for the Brightside Clinic. Again, the more restricted the view of the analyst, the more likely the old model is to diverge from the new entity model.

When the data models have been drawn, the next task is to identify the functions supported by the existing systems.

This is not as difficult a task as drawing the entity models for the existing systems, because a system specification is usually available which describes the functions, even if the description may require some analysing to work out what the functions in the old systems are. The study of the systems specification will also enable the analyst to define the derived attribute types within the existing systems.

There are likely to be endless problems associated with trying to decide which existing data items should be used as source data for the database. None of these are unsolvable, but in many cases the situation has to be a compromise based on a user agreeing in check the results for accuracy.

What problems are there likely to be?

- Data items whose values are simply wrong. In other words, the items may be present, but their contents are of dubious worth.

Existing system		New system	
File name	Data item name	File name	Data item name
OP-APPTMT	OP-CLIN	H-CLINIC	CLINICNM
OP-APPTMT	OP-APPT-DATE	H-APPTMT	APPTDATE
OP-PATIENT	OP-NAME	H-PATIENT	PATENAME
OP-APPTMT	OP-NAME		
OP-PATIENT	OP-DOB	H-PATIENT	DATEBIRTH
OP-PATIENT	OP-DOCNAM	H-DOCTOR	DOCTNAME
IP-OPERATION	IP-DOCNAM		
IP-ATTEND	IP-DOCNAME		

Figure 2

The results of these two stages are the entity model for the existing systems, a list of the functions supported by the existing systems and a definition of the attribute types in the existing systems.

At this stage, no account has been taken of the file structures of the existing or proposed systems or the actual programs used to implement the functions. The next stages in transition analysis make the comparison of existing data with required data.

After the first two stages, the analyst is provided with two vital pieces of information: which entity types are not covered by the system; the definition of the attributes in the existing system.

Once these two pieces of information have been derived, the database and the existing file structures can be compared and a table drawn up, as in Figure 2, to show where there is correspondence and where there is not.

There are likely to be endless problems associated with trying to decide which existing data items should be used as source data for the database. None of these are unsolvable, but in many cases the situation has to be a compromise based on a user agreeing in check the results for accuracy.

What problems are there likely to be?

- Data items whose values are simply wrong. In other words, the items may be present, but their contents are of dubious worth.

Which implementation of the systems or which system thus holds the correct details of the patient?

Hallam Clinic system may have a record which states that J. Smith is male and was born on 10/10/70, but Brightside Clinic system has a record which says he is male but born on 10/12/70, and Hilltop's record says "he" is female!

Again, there is no simple solution – the users have to fight it out for themselves. The best solution we can hope for is to show them the alternatives and values that have been collected and let them decide.

Sometimes data items are embedded in programs. This comes about when the original system did not recognise the value of a data item and defined it only in the working storage of a program – the data item then only exists for the duration of the executions of the program. The only solution is to amend the program to output the data item onto an interface file.

Systems are still being written which have no naming standards for the data items, either within the records or within the programs. For example, patient name may be called Op-pname in one record type, Gp-name in another, AK66 in a program, Tworkout in another.

This makes analysis of the system and the drawing of a model almost impossible. It can result in the data items being indefinable because documentation has been lost, or time is too short to spend hours wading through the mechanics of a program to work out whether Tworkout really is the patient name.

Again, the user may have to provide the data to fill the gap left by bad system design. If naming standards are adopted and one name for one attribute type used in all programs and record types the job is made much easier – for example, if the system team has used Patname as the patient name and made it unique within a file by using a suffix or prefix, such as Op-patname, Ap-patname.

> **Which system holds the correct details? Let the users fight it out.**

This is a user problem – it may require him to generate the data from scratch (much as he may object) and ignore the fact that data values do exist.

The second problem concerns duplication of data items over several record types within the one system. For example, in our Out-Patient Scheduling system, patient details may occur not only in the patient record but in the appointment record and several other transaction files or even interface files between systems.

The question here is: which file/record type is likely to be the most up-to-date and correct? This can normally be worked out from the systems specification, although I have known cases where this has also required the user to generate data from scratch. Where the system team has labelled a file "master file", it is usually a good indication that this may be the best source.

Duplication over several record types over more than one system usually causes the most headaches, simply because it ends up being a political problem as well as a data problem, as every user is convinced that his data is more correct than anyone else's.

The problem arises when the data item describing an entity type occur in different existing systems, where the entities within that entity type are represented also within different implementations.

For example, appointments would cause us no problems as they are unique to a clinic, but patients would be a problem, as a patient can visit more than one clinic and also attend for operations. The same patient record could thus occur within the files of all the different systems.

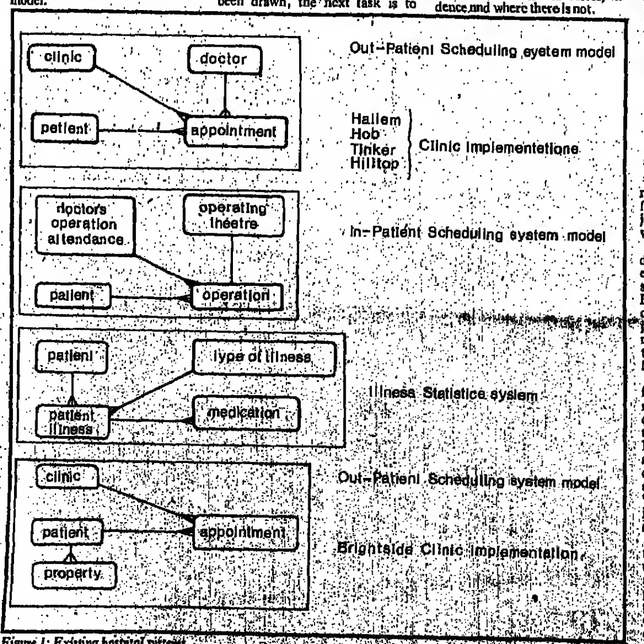

Figure 1: Existing hospital systems

Next the existing functions must be compared with the functions of the new system. The purpose of this is to find out:-

- where the new functions require backup by part of the old system to provide the attribute types required;
- where the new functions were incorrectly specified and hence the attribute types are either wrong or not what is required;
- how the transition from the old system to the new system can best be achieved. In other words, the best phasing of implementations.

Comparison can either be done by comparing function descriptions, or by actually decomposing the functions of the old system. It depends on how much time is available as to how detailed the comparison is, and to what extent the purposes listed are satisfied.

It may be necessary to perform quite detailed functional analysis of the old systems where the procedures of the systems and definitions of the attribute types are very complex.

The final phase of transition analysis is the drawing up of the conversion strategy, or plan of action. This should contain the following information as a minimum (Extra information may be required depending on the type of conversion, training required, etc.

> **The user may have to provide the data to fill the gap left by bad system design.**

1. The interfaces required between the existing system's files and the new database files, specified in terms of attribute types.
2. The data items required from other sources and the method of acquiring that data (data capture).
3. The parts of the existing systems which must be retained to provide input to the new system and the amendments which may be needed to the systems as a result.
4. The amendments required to the existing systems to cater for the conversion process.
5. The new programs required to perform the conversion. These will include any programs required to actually convert the format of the data items and the codes. A data dictionary can often be used to aid the process.
6. The strategy for proving the new system: parallel running, direct changeover or pilot running.
7. The partitioning of the conversion – which functions are going to be implemented as one group, whether the conversion will be by each implementation of the existing system or by all systems and so on. The results of the functional analysis of our existing or new systems will help in this respect, as the two can be compared to isolate the groupings which have a minimum of interfaces with other systems.
8. The timing of the conversion – this is very important as several can be running, for instance, many may be possible over any length of time. The decisions are likely to be based on the resources available: people, machine time, volume of data, etc.
9. The strategy for operating from the user's viewpoint, i.e. what the user will be expected to do.

	Contents	
	Record 1	Record 2
*Patient Number	AB645	AB645
*Sex	male	female
*Date of Birth	15/10/70	10/10/70
Start date of illness	10/1/80	8/12/79
End date of illness	20/1/80	15/12/79
*Type of illness (diagnosis)	mumps	mumps
*Normal length of illness	3 weeks	4 weeks

Figure 3

All the above tasks may be repeated for the clerical aspects of the system. In other words, the conversion of both the computer system and the clerical system must be considered.

Both entity analysis and functional analysis are used to draw up a strategy for conversion of the existing systems to the new database. In the next article the data dictionary will be discussed as a tool for analysis and design.

The Data Analysis methodology was developed at CACI by Rosemary Rock-Evans.

PEOPLE

Industry veteran collects his OBE

DAVID CAMINER, who was one of the few non-administration people from the computer field to be awarded an OBE in the New Year Honours List, was invested last week.

Caminer began working with computers in the late 1940s when, as manager of systems research at J. Lyons catering company, he selected and delineated the first application for the Leo computer. It is thought that this was the first routine commercial computer application in the world. When in the Fifties, Lyons became an equipment supplier and Lea Computers was formed, Caminer became a director.

Amid a succession of mergers that culminated in the creation of International Computers, Caminer continued to hold top-level posts. As project leader for ICL, he was responsible for installing a large computer system and communications network for the EEC and getting it into operation, until the Community took over responsibility for the system in February last year. He is now an independent consultant.

■ Bill Auton has been appointed branch manager, enterprise division, at Nexos. Before joining the company he was national sales manager with Canon Business Machines. Keith Childs has been made branch manager at the company's sales office in Manchester. He has been with the company for just under a year, and before that held sales positions with Nixdorf Computers and Saab Scania.

■ George Isaacs has been appointed vice-president of European operations at Aydil Controls. He will continue in his present job as managing director of Aydin Controls/Vector UK.

■ Dr Norman Sebofield has been appointed technical director of Compeda. He was previously manager of the company's industrial engineering division.

■ Stephen Raine has been appointed senior assistant county treasurer and head of computer services at North Yorkshire County Council. He previously served as computer services and software support manager with the Authority.

DIARY

APRIL 6

The electronic office of the future. BCS East Anglian branch. Eastern Electricity Central Accounting Offices, Russel Road, Ipswich. 7.00.

Mainframe or linked minis? BCS Hampshire branch. Simpact House, Shedfield, Southampton. 7.30.

APRIL 7

Meeting. Gino Users Group. Computer Centre, Mathematics Building, Bristol University. 10.15.

Demonstration by members of the Medway Amateur Computer Club. BCS Kent branch. King's Head Hotel, High Street, Rochester. 7.30.

Drawing the Line – Aspects of Business Forms. IDPM Birmingham branch. Dudley College of Technology, The Broadway, Dudley. 7.30.

The Union View. IDPM Scottish branch. Strathclyde University Staff Club. 7.30.

Technical update – the database experience. BCS North West London branch. Railway Hotel, Gravesford. 7.45.

Computers in banking. BCS West Herts branch. The Culpin Room, The Pavilion, Hemel Hempstead. Telephone Gary Bowman on (0234) 65121 ext 218.

APRIL 8

Air traffic control. BCS Belfast branch, Queen's Common Room, 1 College Gardens, Belfast. 8.00.

Communication aids for the handicapped. BCS Edinburgh branch. Mountbatten Building, Herriot Watt University, Grass Market, Edinburgh. 5.30.

Visit to Guiness at Park Royal: Computer control of the brewing process. BCS Kingston branch. Numbers limited, so apply to GFS Bennett on 01-5171.

Computer typesetting/use of computers in printing. IDPM Essex branch. QB Printers, Sheepen Place, Colchester. 7.30.

Role of DP management in an automated office, branch AGM. IDPM East Midlands branch. Derby College of Technology, Wilmarton, Derby. 7.30.

APRIL 9

Meeting. IBM Guide Set Group. IBM, Basinghall Street, London EC2. Details Alan Peck, tel: 01-828 8104.

APRIL 14

Does the Chip Mean the Chap? BCS Merseyside branch. Faculty of Science Lecture Theatre, Liverpool University. 6.00.

APRIL 14-16

Second London Computer Fair. Association of London Computer Clubs. North London Polytechnic. Details 01-607 2789.

APRIL 29

Experience with new database products. BSC Database Specialist Group. Room G6, New Engineering Block, University College London. 200.

JOHN Butcher, MP for Coventry South West and vice-chairman of the All Party Committee on Information Technology, opened a Computerstore in Halesowen, West Midlands. The store is owned by ACT (Holdings), the UK computer bureau, and aims to sell "everything the serious computer user would want," from complete business systems to stationery ranges, ribbons and printwheels for printers, word processors, and books, magazines and manuals. Among the staff are analysts, programmers and electronic engineers to give advice to users and potential customers. Computerstore is at Shenstone House, Dudley Road, Halesowen.

Racal-Milgo adds to board

TWO appointments have been made to the board of Racal-Milgo. Alan Gill becomes director of the company's UK division and John Babb marketing director of Racal-Milgo Ltd.

Gill spent eight years with Cable and Wireless as radio and line transmission engineer, before moving to BOAC where he worked on the planning and installation of the airline's Bosdicea real time seat reservation systems. He joined Racal-Milgo in 1970 as sales engineer and was made UK sales manager in 1975.

Babb is a physics graduate, whose first industrial post on leaving Nottingham University was with Standard Telephones and Cables. In 1961 he joined Varian Associates as a cable engineer with the company's instrument division, where he stayed for 14 years in various management positions. He joined Racal-Milgo as export sales manager in 1976, and last year was promoted to marketing manager.

■ Geof Gibbons has been appointed package marketing manager at Vontek Computers. He has been with the company for seven years, serving as regional support manager in the North of England.

PCL names senior team

BUREAU P&O Computer Services (PCL) has announced plans to increase the staff in its consultancy division by over 60% during the next year.

To cope with expansion, and an increasing demand for the company's services, several senior management appointments have been made. Trevor Clarke, formerly head of the consultancy division, is now managing director of the company. Ian Morris, who was DP manager, has been appointed head of the operations division. Head of the consultancy division is former marketing and consultancy manager Brian Adams.

Former marketing manager at the Rickmansworth division, Kevin Maran, is now data centre manager and Michael Scott, who was principal consultant, is now consultancy manager.

Freeman

Tunikowska

■ Gordon Freeman has been appointed technical marketing manager of Computervision Europe, after 10 years with the CAD Centre in Cambridge.

■ Jonathan Bachellier has been appointed director of European operations at Athena Inc. He joins the company from Nashua in France where he was responsible for OBM and distributor sales in Southern Europe and North Africa.

■ Misia Tunikowska has joined AM Jacquard Systems as European systems support specialist. She was formerly with Systime as a demonstration supervisor.

■ Ashley Steinhausen and Lin Cook have been appointed recruitment directors with Logistix Recruitment. Both will continue to handle permanent career assignments in the UK and Europe.

■ George Ellis, formerly sales executive with Control Data, has been appointed marketing manager at Lambert Computing.

■ Anna Bailey has joined Adroit Systems as systems manager. She was formerly senior systems analyst at British Olivetti's data processing division in Coventry.

■ David Green has joined ADDS as general manager. He was formerly general sales manager at MAIUK.

CONFERENCES

■ FUTURE developments in automated office systems and inter-office communications as well as developments in the use of computers in purchasing will highlight a conference entitled Computers in Buying. Organised by the Institute of Purchasing and Supply, the conference will be held on April 14 at the New Berners Hotel, London, and is intended to introduce managers to some of the uses of computers and to examine the personnel and financial implications. Presentations will include purchased material control, an auditor's view of computers and personnel and staffing problems. The fee is £76 + VAT for members of the Institute and £77 + VAT for non-members. Details from Barbara Pullen, Institute of Purchasing and Supply, IPS House, High Street, Ascot, Berks SL5 7HU. Tel. (0990) 23711.

■ COMPUTER Graphics 81 will take place in London from October 27-29. The event is being organised by Online in conjunction with Computer Graphics World, the US graphics journal. The event will comprise an exhibition of computer graphics equipment, systems and software, with an international conference and range of tutorials and seminars. The conference organisers are bearing in mind the use of computer graphics as a tool for industry and commerce, as well as an adjunct to the growing number of personal microcomputers. Details are available from Online, Argyle House, Joel Street, Northwood Hills, Middlesex. Tel: (09274) 28211.

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Alan Simpson reviews two works on management and an encyclopaedia of terminology

Taking luck out of systems management

Managing Systems Development by Jeffrey Keen. 343pp. John Wiley & Sons.

FEW aspects of DP management are more intangible or intractable than managing systems development. As an art it is highly abstract and as a responsibility it is often a complete disaster area.

Fall-out comes down not only on the DP management team but possibly on the company as a whole as user application implementation schedules are missed or disappoint expectations.

For many DP managers systems management is a matter of keeping fingers crossed, hoping for the best and trusting to luck. The objective of this new book is to take luck out of the project, replacing it with a formal structured approach.

Author Jeffrey Keen is a disciple of heavily scheduled and phased development. Each project is defined in terms of man days' effort based on an optimum number of standard men and Keen suggests that compiling a detailed list of activities and resources could well take an experienced manager several weeks.

In many installations, schedules and estimates — whether compiled over a period of days or weeks — get blown off course on day one when the project leader resigns, the user department involved changes its collective mind, or the MD determines a higher priority for an alternative application.

The author falls into the common pattern of regarding people as resource factors rather than individuals while equipment is guaranteed non-fallible. In this rather surprising latter respect the book takes for granted that the hardware supplier could have an overseeing role, monitoring management and technical performance.

The IDPM would like to hear of any instances where this "supervision" does take place. However, the author does place much stress on the fact that only firm project management will produce results.

Keen's style drifts frequently into that of lecture notes, the author lapsing into such expressions as "now we see", "let us examine" and "up to now".

□ □ □

He is obviously a DP man of many parts, billed as an independent consultant, head of a successful computer consultancy and an employee of ITT.

The book is produced in the Wiley series on Information Processing and is certainly one of the most thorough on the subject.

It benefits from being an English publication, a welcome diversion from the many similar text books cascading from the US. The book is well illustrated with many useful appendices, checklists and index.

A.S.

Dated but useful technical guide

Microprocessor Background for Management Personnel by James Arlin Cooper. 163pp. Prentice-Hall Inc.

FOR a book with abundant explanatory notes, diagrams, indexes, indices and glossaries, it seems strange that no attempt has been made to explain the title.

Close investigation reveals that the management personnel involved are potential technical managers who have, or rather will have, a responsibility for managing technical people.

If this is the case, the publishers could have got it wrong. The book would seem to be suitable study material both for technical managers and their technical staff.

The book is well produced despite some rather fuzzy pictures which give it a rather dated air, with mag tapes being featured more than disc drives, and chip boards preferred to micro chips.

Possibly with the management level readership in mind, the text is kept fairly basic with advanced mathematics at a minimum.

The microcomputer applications of microprocessors get scant coverage. According to the author, a large computer is typically room-sized, a minicomputer is smaller and a microcomputer about desk size.

A further identifying factor is that the large scale computer could cost millions of dollars, a minicomputer tens of thousands, and a microcomputer thousands.

The author suggests that a major use of microprocessors is in playing Pong or Star Wars. The diligent reader should be capable of designing and producing an electronic game on finishing the book.

As expected, much space is given to systems, design and programming techniques. For such a compact book, a surprisingly large amount of related information is included, covering topics like Social Impact and magazine listings.

A.S.

Could be industry standard

The Concise Encyclopaedia of Computer Terminology. by Dr Adrian V. Stokes. 290pp. £15. Gower Publications.

PUTTING together an encyclopaedia on computer terminology must be a particularly thankless task as the subject of computer science is evolving at a zapping (a semi slang term used to denote amendments) pace.

Only an Oracle (Optional Reception of Announcements by Coded Line Electronics) could determine which terms will last a generation (a file label) or a micro (prefix indicating one millionth) moment.

The book is a cross between an encyclopaedia, a dictionary and a reference document. It is also rather a lucky dip containing potted histories of IBM, Honeywell, NCR and Univac, but not Burroughs. Light pens are featured but not laser printers.

We learn that PET stands for Personal Electonic Transactor, the Cambridge Ring is not the scene of the latest Tolkien saga, and Bar Codes are not a method of attracting attention at the local.

Compiler Dr Adrian Stokes has a background derived from Hatfield Poly and Langton Information and makes it clear that he is as much at home with programming languages as with teletext technology.

Ada, Arpanet and even a pleasant-sounding algorithmic language Jovial, receive full coverage while viewdata hits the narrative jackpot. While not quite coming into the bedside book category, the encyclopaedia is certainly well worth a browse.

Nagging, for instance, is not the working mood of the shift leader but an acronym for Numerical Algorithms Group: SOS is not the ultimate cry for the site service engineer but a reference to Silicon on Sapphire: PM is described as preventative maintenance, phase modulation and — rather dramatically — as Post Mortem.

The Concise Encyclopaedia deserves to become an industry standard issue.

The book is designed skilfully to bridge the credibility gap. It will support the DPM in his dealings with industry telecommunication specialists, and aid the first time user faced with a mass terminology assault by hopeful vendors.

A.S.

Variation on micro melody

Musical Applications of Microprocessors by Hal Chamberlin. 661pp. $24.95. Hayden Book Company.

THE TITLE is somewhat misleading; whoever chose it was seduced by alliteration, or assumed that any book with "microprocessor" in the title would sell automatically.

Chamberlin deals with the software and hardware techniques needed to synthesise music electronically and microprocessors certainly figure in the process, but so do many other things.

A better title might have been: Electronic music synthesis: computer software and hardware techniques.

My other criticism is relatively minor but is something that I hope the publishers will rectify in the second edition. It is that sub-sections within a chapter are titled but not numbered, which makes browsing, or indeed locating one's place, a little difficult.

Passing from the negative to the positive, Mr Chamberlin writes lucidly, and obviously knows what he is talking about.

The first section of the book, entitled Background, has chapters on the physics of sound and how we perceive music, an introduction to methods of sound modification and synthesis plus a short and perhaps unnecessary history of microprocessors.

"Computer-controlled analogue synthesis" deals with microcomputers controlling synthesis equipment.

The final section, Digital Synthesis and Sound Modification, discusses methods of synthesising music directly.

The book is clearly and comprehensively written, with a minimum of mathematics — quite a feat considering the topics included.

JOHN WALKER

Alarming facet of silicon

The Silicon Chip Book by Peter Marsh. £2.50. Sphere Books 1981.

"YOU cannot fight against the future" said William Gladstone in 1886, a statement equally true in 1981. But we can try to choose the best option out of the possible scenarios that may develop.

In this book, Peter Marsh follows up well-written popular science discussions of microelectronic technology and applications with a dive into the speculative area of consequences.

As unemployment heads for an early three million, uneasy "beneficiaries" of the electronic revolution may be less concerned with the techno/scientific explanations and show rather more interest in the discussion of ways in which computers can create jobs.

There is also the associated assessment of whether this job-creating role would be enough to offset the displacement of workers from existing jobs.

I liked the author's classification of broad directions in which the country could steer which are summarised neatly under four heads.

A patched-up, go-for-growth society continuing much as we are is, alas, the most likely. It would mean a gloomy economic outlook and a society split between computer "haves" and "have-nots".

Probably the most important suggestions of Marsh's book are that we should not trust computers too much, nor so blind ourselves by the power of machines that we forget to supervise them. Amen to that!

ISRAEL BERKOVITCH

Can you speak their language?

EDUCATIONAL COMPUTING is the new magazine for everybody who has ever wondered what the microcomputer revolution has meant to education. Here's your chance to find out everything about the use — and study — of computers and their peripherals in schools, colleges and universities.

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This unique magazine will offer penetrating investigations into the educational applications and implications of data processing systems; full details of available courses, examinations, and career options; and an authoritative range of reviews — of equipment, software, programs, and books currently on the market.

And our "Beginners' Guide" really does start right at the beginning, with advice on raising the finance for your hardware, and how to be sure you're choosing the right system for your needs.

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The Sintrom VP800/B Video Processor with 28-character display.

VDU terminal has 28-line display

SINTROM Electronics has introduced the VP800/B Video Processor, an intelligent VDU terminal with a maximum display capability of 28 lines of 132 characters.

Manufactured by Direct Inc., the VP800/B can be programmed to emulate popular terminals, including DEC's VT-100, while offering a wide range of enhancement features in comparison with these terminals.

Besides the 28 line x 132 character display, the VP800/B also provides a 24 line x 80 character format. Resolutions of 6 x 10 and 10 x 12 respectively with a 7 x 9 character dot matrix ensure a legible display.

Characters can be displayed double height and double width, and line drawing characters contained in the standard character set allow the VP800/B to be used for forms generation, business graphics and scientific presentations.

User-defined graphic characters can expand further the diversity of screen presentations.

A split-screen mode allows the display to be divided into two areas permitting the operator to receive status or prompt information in one area while entering data in the other.

Forward or reverse smooth scrolling is at 3 or 6 lines/second and the standard 4K memory will store 3 highest-density pages under the control of a dynamic memory manager packing text at one display character per location.

With average density text, the 4K memory accommodates 6 pages typically and higher application demands can be accommodated by 16K and 32K memory options. Other video attributes include blink and underline.

The detachable typewriter-styled keyboard has 8 user-programmable function keys, a numeric/function keypad and operator-controlled keys for selecting terminal features such as auto-repeat, keyclick, margin bell, tab stops and reset.

All terminal parameters can be set via the keyboard or by downlining from the host computer. When not in use, the keyboard hinges back into the console and makes the VP800/B both compact and secure.

The VP/800B has an RS232C port and a buffered printer port. Data rate is up to 19,200 baud and terminal features include auto xon/xoff, auto tab/repeat, user-programmable answerback and self-test diagnostics.

A font definition package is available which includes user-defined and host computer loaded character sets and proportional spacing.

The single unit price of the VP800/B starts under £1,395 and delivery is currently four weeks.

Sintrom Electronics Ltd (CW), Arkwright Road, Reading, Berks. Tel: (0734) 85464/84322/863417.

Roneo adds to mailing systems equipment

RONEO Alcatel has added the Neopost 2010 Forms Burster, and Neopost 2202 Forms Decollator to its range of mailing systems equipment designed to process computer stationery ready for mailing.

The 2010 Forms Burster is claimed to incorporate features and accessories found normally only on larger models. It is simple to operate and requires no tools for set up and the 2010 can burst 7,500 11 inch or 23,500 3½ inch forms in an hour.

Special 2010 features include an exclusive, patented static bar to eliminate paper cling and adjustable breaker rollers.

The 2010 operates continuously when bursting and has a dual trim width and trim point indicator system making setting up easy and giving precision trimming.

The 2010 is engineered for operator safety with transparent trimmer, conveyor guards and electrical interlocks.

A simple-to-operate decollator, the Neopost 2202 can decollate at up to 350ft. per minute. The 2202 can separate a box of 2-ply carbon interleaved forms in less than 4½ minutes.

Forms up to 6-ply carbon interleaved or 4-ply carbonless can be separated by repeat runs.

The 2202 refolds and stacks the continuous forms and winds the carbon on an open-ended spindle for fast removal and can handle forms from 4in to 15in wide and 3in to 12½ in long.

Integral infeed shelf and pull-out refolding shelf allows the 2202 to be used on its own table.

Both the 2010 and 2202 are supplied with a custom-built table with a convenient two-position forms infeed shelf, storage area and chrome casters for smooth and easy movement.

Roneo Alcatel Ltd (CW), PO Box 3, South Street, Romford, Essex RM1 2AR. Tel: Romford 46000.

The Microtecnica tape reader.

UK launch of low-cost 200 chps tape readers

SINTROM Ellinor is marketing two new Microtecnica Tape Readers in the UK, the RRS 7155G 6-inch reel machine and the RRS 7200D 7.5 inch reel machine.

Both readers are capable of operation up to 200 chps asynchronous and are available with standard 8 character, 1 inch tape format, or a range of optional formats aimed at numerical control applications.

The readers can function bi-directionally and will stop on a DC3 character from either direction. Rewind speeds are 400 chps for the RRS 7155G and 300 chps for the RRS 7200D.

I/O interfaces are +5V TTL with switch selectable logic polarity. Both readers are provided with a protective rear cover as standard and the RRS 7155G can be supplied with an optional desk-top enclosure.

The readers can operate from 115V or 220/240V, 46-63Hz power, selected by a switch on the RRS 7155G and a wire link on the RRS 7200D.

The 10-off price starts at under $1,300 for the RRS 7155G and under $1,600 for the RRS 7200D.

Sintrom Ellinor Ltd (CW), 14 Arkwright Road, Reading RG2 0LS. Tel: (0734)85464.

Texas printer aimed at electronic mail

WITH an eye on the electronic mail market, Texas Instruments has launched the Omni 840 impact printer in both keyboard send and receive (KSR) and receive only (RO) versions with options for 9,600 baud transmission and a 4K input buffer.

Both versions print at 75 chps, weigh about 25 lbs, have a 7 x 9 matrix print head and transmit/receive data to 110, 300 or 600 baud.

The 840 is also designed to be used as a terminal for time sharing systems as well as an input/output device for minis and microcomputers. It uses a cartridge ribbon and costs £850 to £1,070 for the KSR version or between £730 to £895 for RO.

TI has incorporated what it calls optimised bi-directional printing on a 132 characters wide friction feed carriage for the 840. Standard features include a 256 character FIFO buffer for data overflow protection and self-test diagnostics to verify operating parameters when the machine is started up.

It has communications line and terminal status indicators as well as online, local and command modes and many electrical and mechanical parts are interchangeable between KSR and RO models.

Options include forms control that provides for vertical and horizontal tabs and margin control; expanded and compressed print; tractor paper feeding attachment; 9,600 baud transmission; 4K input buffer and 9 x 9 matrix print head for graphics.

Texas Instruments Ltd (CW), Manton Lane, Bedford MK41 7PA. Tel: (0234)67466.

Aller disc controller

THE HIGH reliability, fast access times and low cost-per-bit ratio of floppy disc drives have enabled them to become a popular mass data storage device.

Most systems require the data to be in bit-parallel form and the controller should also be able to perform the serial-to-parallel and parallel-to-serial conversions.

The Aller FDC-8 floppy disc controller board is based on the FD1795/7 and has been designed to provide these functions together with recording density control and head selection for double-sided drives.

Data format may be IBM 3740(FM) or IBM System 34(MFM) compatible or a custom format may be selected.

The host system interface comprises an 8-bit data bus, a 20-bit address bus and the necessary control signals.

Aller Services (CW), High Street, Aller, Somerset. Tel: (0458)250414.

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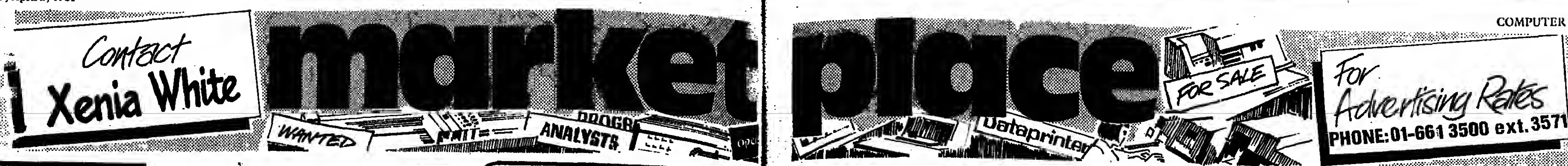

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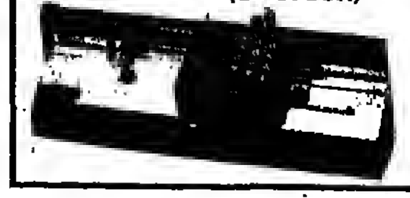

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Recruitment LOGISTIX in Informatics

Pascal Programmers
London & Home Counties: Salary to £10K

A leading supplier of microprocessor development systems has an urgent requirement for Programmers to participate in its advanced compiler development project. Whilst our client has a strong preference for respondents with a knowledge of PASCAL, candidates fluent in any technically orientated high-level language are encouraged to apply. It is essential for all applicants to demonstrate a knowledge of Structured Programming techniques and to have worked on mini- or microcomputer-based systems. These vacancies will strongly appeal to talented, career-minded individuals wishing to enhance their technical skills in one of the most challenging areas of the data processing industry. Ref. L/14/A

Technical Authors
Home Counties: Salary to £10K

Excellent opportunities have arisen for Technical Authors to join a market leader in the manufacture of mini- and microcomputers. All respondents should demonstrate a good command of the English language and have the ability to communicate with people at all levels. Suitable candidates will probably have designed and written user documentation for a Data Systems Software product. However, if you have experience in Programming or Systems Analysis and a desire to progress into the area of Technical Authorship, you should not be deterred from applying. Successful candidates will work in a multi-disciplinary team involved in the preparation of integrated training and documentation packages for world-wide use.
Ref. L/14/B

Communications Software
Southern Germany: Salary to £15K

Communications Engineers from Programmer/Analyst to Team Leader level are urgently required by one of Europe's leading suppliers of communications equipment. Software development teams, based in their R & D Headquarters, are currently engaged in the design and construction of an advanced telephony system based on Intel 8086 microprocessors. All applicants must possess at least two years' real-time software development experience on any leading mini-or microcomputer and be fluent in one high-level problem-orientated language such as PASCAL, CORAL or RTL/2. For the more senior positions it is also necessary to be familiar with an Assembler language and be capable of supervising a small team of Programmers and Analysts. Initial interviews will be held in London and those who are successful will be invited to the Company's premises prior to offers of employment.
Ref. L/14/C

Financial Applications
Berkshire: Salary to £13K + Car

Our client B of U.S. parentage having its headquarters close to extensive motorway and rail facilities in Berkshire. As a result of increased sales of its financial management systems the Company is now seeking additional Financial Analysts and Designers to act in both pre- and post-sales environments where analytical design skills are essential. Successful candidates should be aged 28-35 years and possess an outgoing personality since these positions entail a large amount of user contact at both board and technician level. Technically, you should offer expertise gained in a Banking (Retail or Merchant), Stockbroking or Accounting environment with a large-scale IBM user or Systems Supplier. Ref. L/14/D

IBM Systems Engineers
London and E.E.C.: Salary to £20K

Several IBM-orientated Systems Engineers are sought for the Customer Support Division of a leading supplier of DBMS and T.P. Software products. Extensive knowledge of at least two of the following is essential: CICS, IMS., TOTAL, IDMS, MVS, TSO, ENVIRON or SHADOW. Such exposure will preferably have been gained during the implementation and/or support of Database and Teleprocessing systems utilised by a large manufacturing or financial organisation. Applicants wishing to be based in Continental Europe will be expected to possess a working knowledge of either French or German. Where applicable, full relocation costs will be provided. Ref. L/14/E

Cobol Programmers
H Counties/Holland: Salaries to £13K + Car

A leading Systems and Software House, which has expanded rapidly over the last 5 years, currently requires Programmers for both its U.K. and Dutch offices. Applicants should be graduates with a minimum of 3 years' COBOL and/or BASIC programming experience on any mainframe, mini- or micro-computer. Working as a member of a small team you will be involved in the development of bespoke software for various clients including most major computer manufacturers. The company offers outstanding benefits including 14 months' salary per annum, a company car, an annual bonus and an opportunity to purchase equity. Ref. L/14/F

Graphics Applications
Thames Valley: Salary to £10K + Benefits

A market leader in the manufacture, sale and support of graphics terminals and instrumentation devices has a requirement for Systems Programmers and Applications Support Consultants. An in-depth knowledge of either FORTRAN or Assembler is mandatory. In addition our client seeks current post-graduate involvement with CAD/CAM techniques for at least one year. All positions will involve a degree of national and international travel and, in certain instances, a Company car will be provided. The Company offers a highly attractive remuneration package including a non-contributory health and medical scheme. Ref. L/14/G

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(5041)

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(5051)

City of Newcastle upon Tyne

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Grade PO1 (6-10)
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- directing the activities and developing the skills of all staff assigned to the team;
- acting as computing consultant to the Council's accountants.

The person we want will certainly have been in computing for several years working on the development of a variety of applications, and will have been the brains behind at least one v.i.p. (very important project). Ideally he or she will know all there is to know about local government, finance and accounting, I.C.L. hardware and software, databases, tp systems, new technology and man management; but we would settle for any of these in the right person.
Our service conditions include generous annual leave and a comprehensive relocation package in appropriate cases.
If you are interested in applying, forms and further details can be obtained by contacting Dave Bainbridge, Systems Development Manager, City Treasurer's Department, Civic Centre, Newcastle upon Tyne, NE99 1RD or by telephoning him on Newcastle (0632) 28520, extension 5439.

(5068)

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Attention of GEORGE LAVIGNE

(5053)

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Salary is negotiable.

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Zilog (UK) Ltd.,
Babbage House, King St., Maidenhead, Berks SL6 1DU
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(5043)

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University of London
COMPUTER SCIENCE & STATISTICS DEPARTMENT

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(5050)

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SAPPA Ltd., established poultry farmers, hatcherymen and egg wholesalers, has vacancies for an experienced Analyst/Programmer and a Junior Programmer with knowledge of O.O. Business Basic under R.D.O.S.
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Salary will reflect experience. Please apply in writing, with C.V., to:
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(5044)

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Contact: Brian Postles

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Sweda International, a division of Litton Industries, are market leaders in the challenging field of advances and electronic point of sale cash systems and are currently seeking a product support manager to head their expanding systems team responsible for pre and post sales support.

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Contact: David Hendry

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Contact: David Hendry

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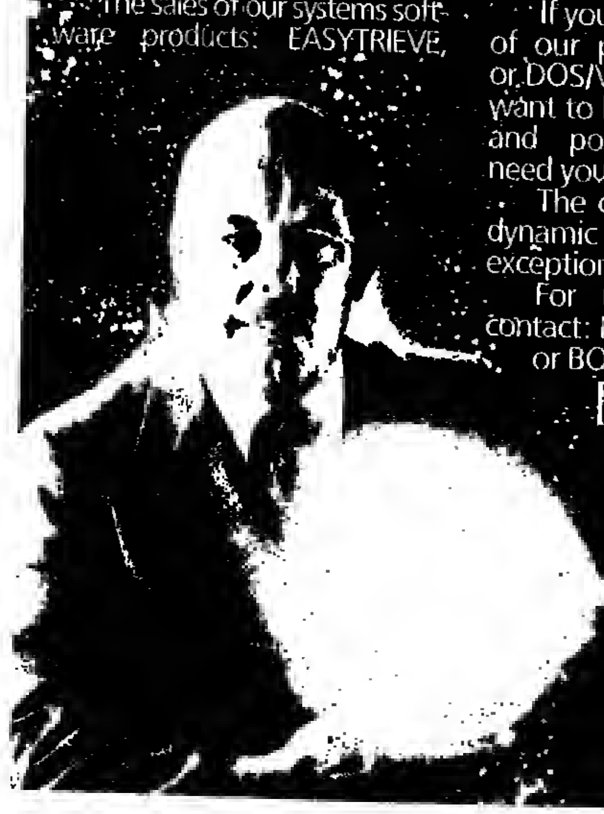

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IBM	Senior Analyst	Oman
IMS or TOTAL	Analyst and Programmers	Holland
U.K.		
MARK IV	Programmers/Analysts	London
COBOL/CICS/DL1	Senior Programmer	N. West; Essex
ASSEMBLER/CICS/DL1	Programmer	Essex
RPG/System 34	Programmer/Analyst	London
IMS	Designers, Analysts, Programmers	S. London; London
COBOL/UNIVAC/EXEC	Programmer/Analyst	Essex
HP3000/COBOL	Programmer/Analyst	London

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(5058)

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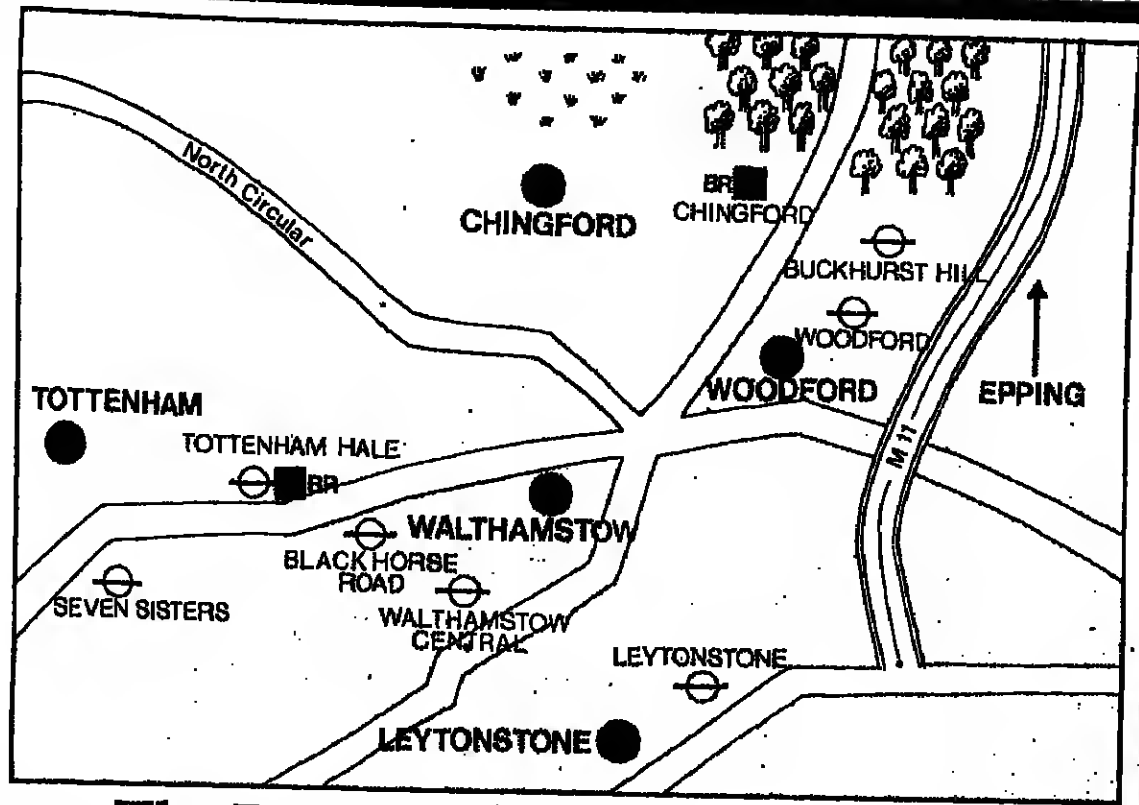

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Action
Telephone or write to CAPP Associates, quoting ref: CW111-1T, they will provide you with additional information. All interviews will be conducted at the client's premises in North London.

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The successful applicants would undertake software developments in support of scientists engaged in the large-scale computer simulation of oil reservoirs. Programming would be mainly in Fortran.

Although experience in programming on minicomputers or mainframes, and with graphics software, would be an advantage, we would also be interested in hearing from those with user experience in computing systems who would like to move into the software field.

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(5028)

Winfrith

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£5,500-£8,500 plus bonus

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- ★ ICL 1500 BTL
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(5060)

Barron McCann Limited
Computer Systems and Consultancy

DATA PROCESSING OPPORTUNITIES USA

special editorial feature-MAY 28 issue

COMPUTER WEEKLY — Britain's largest circulated computer publication — will publish a special editorial feature in The May 28 issue designed to outline the career opportunities for fully qualified and experienced data processing personnel in the United States of America.

The current international shortage of data processing staff is likely to remain a problem for the foreseeable future becoming increasingly acute with the growth of computer installations. The prime objective of this feature will be to create a greater awareness amongst readers of the scope and job opportunities available in the USA.

COMPUTER WEEKLY has a circulation of 100,000 — the largest of any comparable journal in the U.K. Equally important, readership dominates all the major job categories [illegible] level while the newspaper Operations staff.

If you are [illegible] advertise, you [illegible] opportunities [illegible] special editorial feature and [illegible] Career [illegible]

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[

CONTRACTS ADVERTISING FEATURE

No longer a necessary evil – attitudes are changing to contract staff

Ian Humphries (left) is managing director of Knight Computer Services. He sees the contract programmer as a descendant of the mediaeval journeyman. The contractor, he says, is "a skilled artisan, confident in his abilities, who travels from job to job plying his trade".

□ □ □

by Ian Humphries

WALK into the majority of computer installations in the UK and the chances are that many of the staff you see won't be permanent. They'll be contract staff.

The situation has evolved gradually, and so has the criticism levelled at contract staff, once thought of by many as simply a necessary evil – loners, with no allegiance to anyone but themselves.

Fortunately, attitudes are changing and this myth, in most cases both unjustified and unrealistic is ready to be exploded. It is now being realised that contract staff can make a real contribution and bring significant benefits to the performance of a computer installation.

The role they can play is starting to be appreciated, rather than tolerated, and the fact that others are now understanding why programmers decide to work on contract will help enhance their professional status and unprove their acceptability.

In fact, the modern contract programmer is a descendant of the journeymen of the Middle Ages: a skilled artisan, confident in his abilities, who travels from job to job plying his trade. The journeyman was respected by his peers and employers alike, and it is only right that his modern counterpart should receive the same respect.

Why a programmer should choose this way to earn his living must be considered. Wrong assumptions are often made, which give the contract worker a bad name with employers and which can tempt the wrong type of person to contract work.

The general belief seems to be that he is taking advantage of a situation in which skilled people are in short supply, to make a "fast buck". Well, fast buck operators don't normally last long in any field – and yet many contract programmers have been around for more than ten years!

Other imaginary reasons thought up by others include a chance to take it easy, or buck discipline, or escape responsibility.

In reality, the situation is somewhat different. Writing computer programs can be, and largely is, a one-person task. With a good specification the task can be accomplished in complete isolation; a pattern that in some cases can also be extended to the analysis and design stages.

Indeed, on occasions a whole project is best divided into parts and tasks undertaken by people with the right skills and experience. And when that right person is not available inside the company, then a contract person can be used effectively in this situation, as an expert in his chosen field.

"It is a role that demands single-minded application and an independent nature as well as a high level of competence."

From experience, the main motivation of contract programmers is to continue to do what they do best – to use their knowledge and skills to do what they enjoy most, that is, specialising. Often, they are too specialised to be taken on as permanent staff by one company, but not too specialised to be employed full-time by many companies in succession.

It is a role that demands single-minded application and an independent nature, as well as a high level of competence. As for other motives – well, variety can be experienced in terms of a changing environment, but as an admitted specialist who enjoys doing the same kind of job over and over again because that is the job he likes – that will be the only variety to be found.

It is vitally important that any prospective contract programmer seriously considers all these aspects, since to choose for the wrong reasons will probably result in choosing the wrong type of career.

It may seem that money has been dismissed as an important factor. This is because the money simply is not a good enough reason for most people. And indeed it should not be. If you are not suited to the life, you will not like it, and that is that. But capable contract programmers can certainly earn a lot, and tend to last for a long time.

Although contract programmers may seem to be a recent addition to the computing scene, this is not so and it is possible to look at many who have spent years assigned to contract work.

This company could quote many examples, not untypically a "journeyman programmer" who now has some 12-plus years' experience. During this time he has completed over 40 assignments, working mainly through the same agency and building up mutual confidence with both the agency and its clients.

"These staff are their own best salesmen, when backed by a reputable service which is capable of understanding the client's needs."

Indeed, confidence is the key to successful contract work. The programmer must be confident in the agency he chooses to ensure that his skills are utilised to everyone's best advantage; and in return, that agency must be confident of the programmer's skills and professional application to ensure that both agency and programmer retain the client's confidence.

And what are the client's needs? Basically, a contract programmer is a specialist with a depth of experience and ability in his own field that clients would be unlikely to need on a permanent basis.

In other industries contract staff are used widely and to great advantage. In the construction, shipbuilding and technological design fields this is common practice and, indeed, in many cases it is the only way to remain competitive.

So are those responsible for computer installations now realising what useful resource experts can be, and can contract programmers look forward to maintaining their position in the marketplace?

In this company's opinion, the value placed on contract staff will grow, since buying in a skill for a particular task makes solid economic sense. Many computer users and their personnel management now recognise the usefulness of such staff, to the extent of actively seeking out areas where their skills could be brought in – and plan ahead to do so.

It should be emphasised that the strength of this sector will no longer depend on the non-availability of skilled staff, as in past years. It will exist because it benefits the work in hand and this being so, it will need to offer a competent, professional service.

In the long run, the reputation suffered or enjoyed by the contract programmer will depend on the work he does. These staff are their own best salesmen, when backed by a reputable service which is capable of understanding the client's needs.

This company has experience enough to know that there are enough contract workers whose performance can be guaranteed to safeguard the future of the contract sector – and to assure that the myth of the maverick will soon be dispelled by the modern journeyman programmer.

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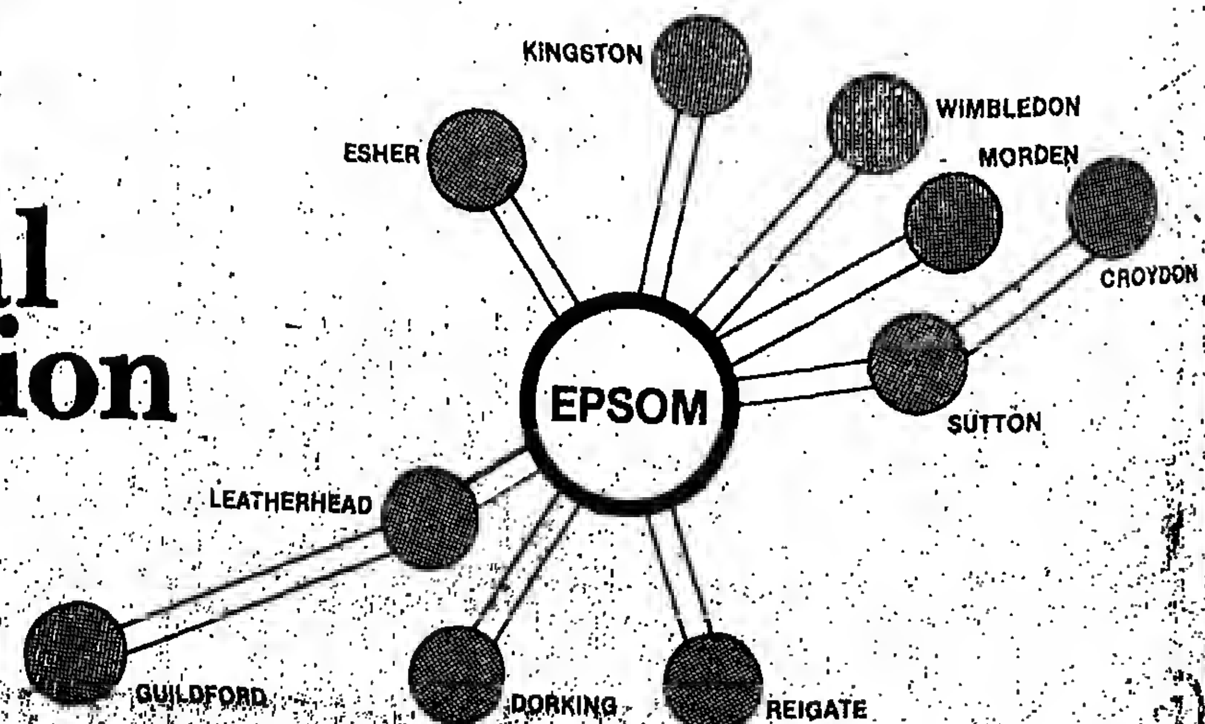

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(5019)

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(5020)

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(5073)

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We have several Hewlett Packard clients with current vacancies for experienced Analysts, Analyst Programmers and Programmers. Experience required is from 1½ years' upwards on this equipment with a good knowledge of commercial or Insurance applications and a good standard of education. Progression within the various companies is excellent as all offer solid career growth. A wide range of company benefits are offered and represent fine opportunities for suitably qualified applicants. R.GEN 1

The above vacancies are only a small selection from those currently on our files and we are always delighted to talk to experienced systems and programming staff wishing to further their careers. (4779)

Datascene International Limited, Sceptre House, 169-173 Regent Street, London W1R 7FB. Telex: 25851.

01-439 7871 24 hour answer phone

Targa

CITY c. £9,000

PROGRAMMER AND ANALYST/PROGRAMMER

An International Bank in the City is looking for a Programmer and an Analyst/Programmer for its Auditing Section. These are unique positions for people with DEC BASIC experience, preferably with a banking background, and may offer some opportunity for European travel. The Programmer will be expected to have between 12-18 months' experience and will command a salary of around £6,500. The Analyst/Programmer can expect £8-£9,000. A superb company package goes with these salaries and makes the positions really worthwhile. Ref. J3337

£6,000

PROGRAMMER

An opportunity has arisen for a young PROGRAMMER to join a large Financial Institution in the City. If you can show a year's MUMPS experience or indeed any experience with DEC machines and would enjoy working on financial applications, then enquire now. All retraining of suitable candidates will be carried out by the company. The benefits package is considerable, and includes free lunches, a season ticket loan after 3 months, and a bonus of up to 10% of salary after 18 months' qualifying period. Ref. J3324

LONDON c. £8,000

PROGRAMMER

A member of a large Financial Group in London is looking to expand its Computer Department. A DEC Programmer with BASIC+ under RSTS/EV.7 and 2-3 years' experience is needed now, and a Junior Programmer in the near future. These positions carry the usual financial benefits, including a subsidised mortgage, and 4 weeks' holiday. There may also be the opportunity for paid overtime. Ref. J3334

SLOUGH c. £10,000

SYSTEMS ANALYST

A Systems Analyst with a minimum of 3 years' exposure to a COBOL environment is required for a Bureau in Slough. This is a situation where the successful applicant will be expected to liaise with clients from all backgrounds, and accurately determine their requirements. The Company offers free BUPA, flexitime, a staff canteen and an in-house social club, plus other benefits to enhance the salary, as well as working in a pleasant environment. Ref. J3336.

SURREY To £11,000

ANALYSTS, PROGRAMMERS

A large Insurance Company in Surrey is looking for Systems Analysts and Programmers to expand their existing Department. Applicants are expected to have 18-24 months' Systems experience on ICL 2900 machines with knowledge of VME 3, DME 3 or GEORGE 3. Financial experience in either Insurance or Banking would be an advantage. Excellent benefits as expected with Insurance Companies include mortgage subsidy, annual bonus and others, adding up to a well worthwhile package. Ref. J3304

KENT To £12,000

PROJECT LEADER

A chance to lead the design and implementation of major on-line systems is provided by a prestigious Kent-based Insurance Company. Aside from the challenge of linking a large number of remote sites the company offers a wide range of benefits including MORTGAGE facilities and FLEXITIME. In return the successful applicant will demonstrate a COBOL background and supervisory skills gained in a formal environment, preferably during the development of on-line and/or Database systems. Ref. B3065

CITY £7-£10,000

ALL LEVELS

Tremendous scope in a development environment is offered by an International Insurance Group. Utilising the latest IBM hardware together with CICS and DL/1, the company have opportunities at Programmer through to Project Leader level. A minimum of 2 years' experience is required for the Programmers, while Systems Analysts and Project Leaders will have to demonstrate relevant software and/or COBOL applications exposure. A very attractive range of benefits is offered. Ref: R3323

N. LONDON c. £9,000

SENIOR PROGRAMMER

A major Manufacturing Group are about to take delivery of a powerful new IBM. Their large-scale development plans include the use of structured programming techniques and CICS COBOL based systems. A Senior Programmer is required who will also act as advisor to the development team and assist at systems design level. This is a responsible and challenging position for the successful applicant who must be able to demonstrate an appropriate track record. Ref: R3339.

CITY c. £11,000

PROJECT LEADER

The opportunity to be instrumental in setting up a new Data Processing Section is offered by a major City-based Bank. The field is communications and word-processing utilising up-to-the-minute hardware. Applicants must be Associates of the Institute and have some formal O & M training with a Computer background. Apart from the opportunity for overseas travel the usual first-class BANKING FRINGE BENEFITS apply Ref: R3340

VARIOUS £7-£9,000

RPG2 PROGRAMMERS

We still have a number of vacancies for Programmers and Analyst/Programmers with good RPG2 experience. Positions are available in S.E. London, West End, City, Berks, Sussex, Surrey and Middlesex. Offering a wide range of applications from banking to productions systems. Call us now if your career needs a boost. Ref. R GEN

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TO £9K + CAR
IBM ANALYST/ PROGRAMMERS
WEST LONDON

The planned development of new systems for the UK and European offices of our client offers exciting career opportunities for ANALYST/PROGRAMMERS in West London.

The Company operates a highly successful commercial business and relies extensively upon computer systems for their future. IBM hardware with database and on-line software is currently in use, and the development team is now to be expanded to work on a range of new projects.

At least two years' IBM COBOL is required and applicants will also offer a natural aptitude for systems design as they will participate in all phases of project development.

A company car will be offered to the successful applicant and the commencing salary is further enhanced by an attractive range of benefits. Ref: W1/0204

OPS MANAGER YOUR NEXT MOVE

S.W. LONDON c.£10,500 (CAR OPTION)

Reporting to the Managing Director of a major international organisation, this position offers variety, challenge and a positive career move to the successful applicant.

Willing to accept responsibility for an independent cost centre, candidates are most likely to be working in the operations department of an IBM DOS/VS (or DOS/VSE) installation and will possess an in-depth knowledge of the operating system along with its associated software. Systems programming involvement would be an advantage but the ability to manage and promote the activities of the section is of prime importance. The areas of involvement will encompass:

★ TECHNICAL SUPPORT MANAGEMENT ★
★ CUSTOMER LIAISON ★
★ PROGRESSIVE ENVIRONMENT ★

Servicing clients throughout Europe, this position requires someone with drive and initiative and it will provide every opportunity for further career advancement. Ref: S1/0204

MYRIAD APPOINTMENTS LIMITED
... Fleet Street London EC4Y 1AA Telephone 01 353 0981 24 hours (5058)

Cambridge Instruments is an acknowledged leader in advanced technology instruments

ATE ANALYST PROGRAMMERS

We require ATE Programmers to join a small and dedicated team to write production orientated software programmes, using our highly sophisticated Genrad 179X functional ATE systems.

The ideal applicants should be educated to degree standard with minimum of two years experience of ATE programming on Genrad, Membrain or Teradyne ATE system. Some knowledge of mini computers and design experience is desirable.

Attractive benefits, salaries and a generous relocation policy are offered by a large international high technology company, which is a major force in a world-wide growth industry.

Applicants should either write or telephone for an application form to John Sissons, Personnel Department

CAMBRIDGE INSTRUMENTS LIMITED
Rustat Road, Cambridge CB1 3QH. Tel: (0223) 42021

5016

LIVERPOOL POLYTECHNIC
COMPUTER SERVICES DEPARTMENT

PROGRAMMER

£5,952-£6,750 per annum

A new computer system is being installed during the summer to provide interactive facilities for all Polytechnic departments. The new computer system, supporting 64 simultaneous users, will be operating in parallel with the existing 1903A batch system.

The Polytechnic's Computer Services Department was created little over 18 months ago and staffing levels within the department on the programming side are minimal. The successful application will be expected to play a major role in the installation of the system and the establishment of an effective computing service for the Polytechnic.

THIS VACANCY OFFERS A UNIQUE OPPORTUNITY TO BE INVOLVED AT THE START OF A MAJOR DEVELOPMENT PROGRAMME.
PLEASE QUOTE REFERENCE LP/496

Applications are invited from candidates who have, or expect to obtain, a degree in Computer Science. For further particulars and application form, contact the Personnel Office, Liverpool Polytechnic, Rodney House, 70 Mount Pleasant, Liverpool L3 5UX. Tel: 051-708 6620 Ext 43.
Informal details may be obtained from members of the Computer Services Department by ringing 051-207 3581 Ext 129

(4936)

COMPUTER ENGINEER

Central Scotland
£11,000 Package

DML Computers Limited are the sole distributors in Scotland for Storage Technology (STC) products.

DML have been in the IBM plug compatible field for the past four years and, as an extension of their "total sales and service" concept towards clients, they are now expanding their field engineering force.

The successful applicant will be maintaining STC Tapes, Disks, Add-on Memories and Intel microprocessors, etc. Although full product training is available, applicants must have proven experience in the large D.P. environment.

The above package including a quality company car is offered to the candidate with the right experience, initiative and personality. This is an outstanding opportunity for an ambitious and responsible engineer looking to the future.

COMPUTER PERIPHERAL SALES (LARGE SYSTEMS)

Central Scotland
£25,000 Package

Storage Technology (STC) Discs and Tapes have now been successfully installed across Central Scotland by DML and we are now looking for a top calibre sales person to capitalise on our rapidly expanding user base.

The successful candidate will have an outstanding track record of sales, with integrity in the Large Systems area.

The product range will include Discs, Tapes, Memories, Fast Printers and Communications, and you will have to prove your ability to understand a customer's requirement in this area.

The package includes a quality company car, as well as the ability to sell the "Rolls-Royce" of Discs STC.

For further details, phone Alan Smellie or Sheila Price on 031-228 8674, or send a written application to DML Computer Personnal Services, 11 Charlotte Square, Edinburgh EH2 4DR.

All applications will be treated in the strictest confidence. Please quote ref. CW2/4.

D M L

(5084)

UNIVERSITY OF ESSEX

LECTURER IN THE DEPARTMENT OF ELECTRICAL ENGINEERING SCIENCE

Applications are invited for the post of lecturer (salary scale £5505-£11575, under review) in the above Department, for appointment from 1 October 1981, in the area of DIGITAL and COMPUTER SYSTEMS. Candidates should have an honours degree, and relevant experience in some branch of computer engineering or computer systems. Applicants with all-round ability in computer systems, hardware and software, are particularly sought; those with a special interest in microprocessor systems, computers in telecommunications, information technology, user interfaces or programming languages are encouraged to apply. The Department of Electrical Engineering Science specialises in electronics and has research interests in telecommunication systems, instrumentation, computer-aided design, microprocessor applications, and man-computer systems.

Applications (nine copies), including curriculum vitae and the names and address of two referees, should reach the Registrar (AG/120/CW), University of Essex, Wivenhoe Park, Colchester CO4 3SQ, from whom further particulars may be obtained, by 24 April, 1981.

(5018)

CONTRACT...

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SYSTEMS ANALYSTS

CUSTOMER ENGINEERS

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Our client manufactures an extensive range of high-performance systems including Real-Time Minis, distributed processing networks, small business systems and many others. Group sales exceed 1 Billion Dollars with over 20,000 installations world wide. Growth and quality are hallmarks of this company offering exciting career opportunities to ambitious engineers seeking new challenge and advancement.
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ALLTRONICS PEOPLE, 01-543 4844

(5042)

Computer Centre – Barking Precinct,
Longbridge Road, Dagenham, Essex

Programmer SO1/2

Required to join a team of programmers working in three main areas, Academic; Applications, Systems and Management Information. Applicants should possess a degree and be fluent in at least two programming languages (preferably one scientific and one business orientated language). The Centre operates ICL 1904S and PRIME 550 computers with extensive on-line facilities; experience of either of these machines would be an advantage.

The annual inclusive salary is on a scale from £7,983 to £9,210 according to age, qualifications and experience.

For further details and an application form please contact the Polytechnic Personnel Office, North East London Polytechnic, Asta House, 156-164 High Road, Chadwell Heath, Romford, Essex, RM6 6LX. Telephone 01-590 7722 extn. 3121 or 3135, quoting reference number 52/2/80.
Closing date: 13th April, 1981.

NELP North East London Polytechnic

WEST COUNTRY

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SOFTWARE PROGS	Coral 66 or Fortran	£neg	GLOS
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AN/PROG	PL/RT Fortran.	to £8K	GWENT
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AN/PROG	Fortran	£neg	WILTS
SOFTWARE ENGS	Coral 66 or Fortran	£7K+	SOM
PROGS	Coral 66	£neg	DORSET

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(5088)

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FOR FURTHER DETAILS OF THIS WEEKLY FEATURE CONTACT
OWEN KELLY, 061-872 8861

★ AMERICA ★

D.P. PROFESSIONALS

WEST COAST – USA

Our client is currently in London interviewing for the following positions:

ANALYST PROGRAMMERS
with 3 yrs.+ IBM COBOL/MVS (MVT)
CICS an advantage

PROGRAMMERS
with exp. of IBM 3600 & Financial Applications.

ACP/IPARS PROGRAMMERS
3 yrs. exp.

SYSTEMS PROGRAMMERS
IBM MVS or ACP exp.

For further information, please phone Lloyd Williams or Lew Berlent on 01-636 1629/627 or at the number below.

STOP PRESS

BURROUGHS

We would also like to hear from Analysts, Programmers and Systems Programmers with exp. on Burroughs equipment.

COMPUTER TWO THOUSAND LTD
D.P. Recruitment Consultants
217-218 Tottenham Court Road
London W1P 9AF
Tel: 01-636 7584 (24 hrs)

(5078)

Computer Development Staff

The County Council installation is based on ICL 2900 computers supporting a county-wide network of terminals and ME29/2903 local processors and the Computer Development Section is being expanded by TWO ANALYSTS and ONE PROGRAMMER.

Applicants for the ANALYST posts should have at least six years ICL experience, preferably in Local Government. Knowledge of Financial or Property-based information systems would be an advantage.

These posts are graded SO.1/2 (£7,000 to £8,600 p.a.) with starting point depending on experience.

Applicants for the PROGRAMMER post should have at least two years' experience in ICL COBOL and GEORGE3. Knowledge of MTS, TME or RPG2 would be an advantage. It is a career grade post in the range Clerical 1(b) to AP.5 (£3,500 to £7,300 p.a.) depending on experience.

Assistance will be given towards removal and relocation expenses.

For further information, telephone Mike Fuller on 0872-74282 or write giving full details to the County Treasurer, County Hall, Truro, TR1 3BD, not later than 16th April, 1981. Please quote ref. no. 120 when replying.

Cornwall

KEEN COMPUTERS NEED MORE STAFF

To expand our operation in Nottingham we urgently need the following staff.

TECHNICAL-SERVICE MANAGER

This new post in our organisation will be very demanding. Only experienced and ambitious persons will be considered; Engineering knowledge will be necessary.

FIELD SERVICE ENGINEER

Field service engineers are needed to work both at our base in Nottingham and in the field. The equipment is interesting and varied. Mainly Winchester Devices and Micro Computers.

SALES PERSONS

Experienced Sales Persons with a knowledge of business systems are needed to sell an increasing range of computers. These Sales Persons will be based at our Nottingham showroom and very occasionally required to visit customer premises.

TELEPHONE NOTTINGHAM 583254

Coláiste na hOllscoile Corcaigh
University College Cork

COMPUTER SCIENCE

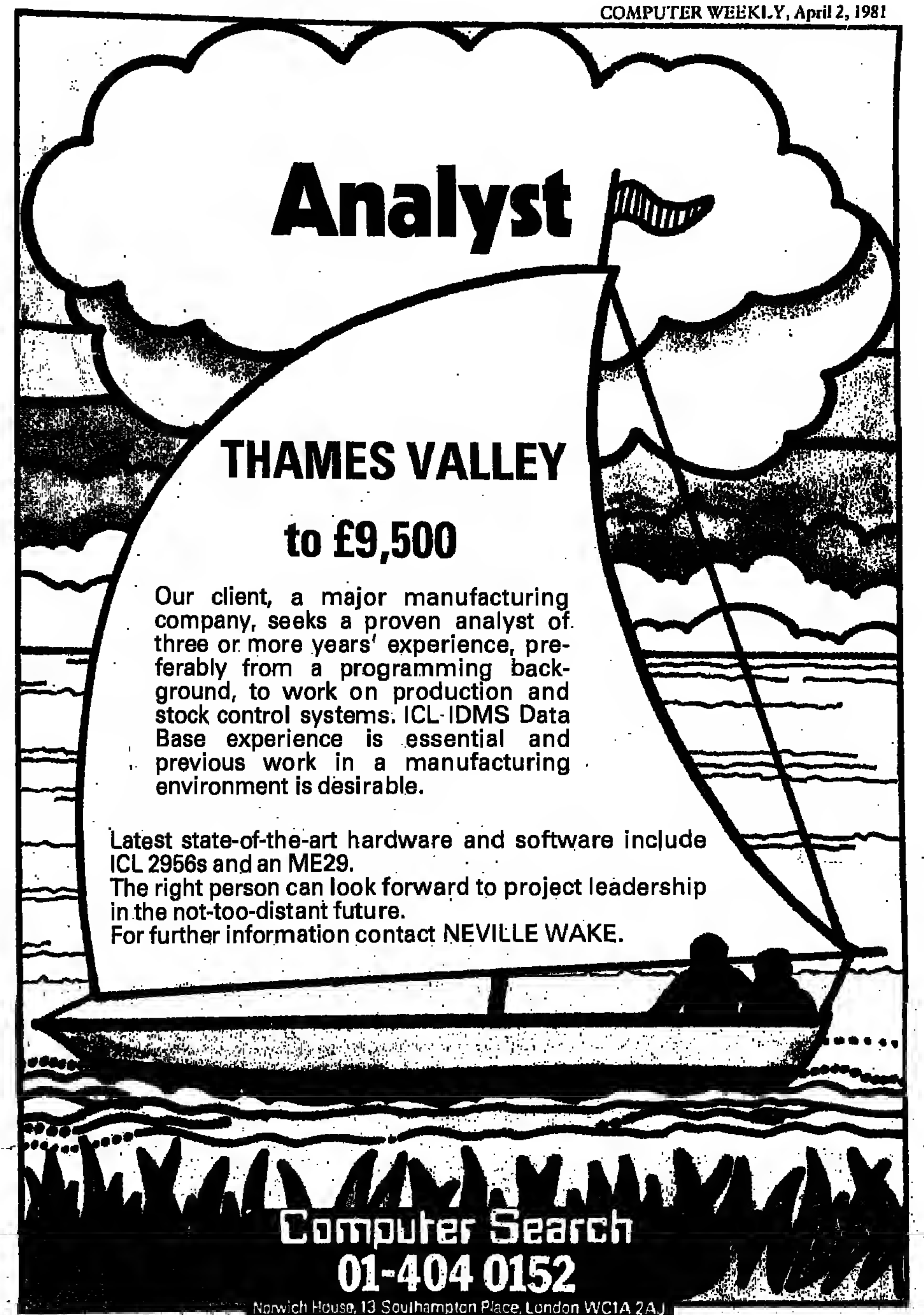
Applications are invited for a number of full-time permanent posts as Assistant Lecturers/College Lecturers in the Department of Computer Science.

The salary scales (under review) are:
College Lecturer IR£8,087-IR£9,895 Bar IR£10,302-IR£13,169 per annum. Assistant Lecturer IR£7,021-IR£7,624 p.a.

Application forms and further details of the posts may be obtained from the undersigned.

Latest date for receipt of applications is MONDAY, 4 MAY, 1981.

M. F. Kelleher
Secretary



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Advanced Systems Technology

Consultants — **c. £13,000 + benefits**

Transaction Security Limited is a young progressive U.K. Company, specialising in advanced computer and communications security technology. We have substantial financial backing from the Finance for Industry Group, which is owned by the major U.K. banks and we are planning, with overseas partners, to open an international network of systems houses to specialise in this field.

We are now seeking professional engineers and systems designers who can contribute to our corporate growth in the following fields:

- high integrity fault tolerant computers
- computer networks
- cryptography
- image processing and pattern recognition
- secure operating systems and data base systems
- microprocessor and VLSI technology
- banking automation
- office automation
- factory automation
- defence systems

Candidates with good honours degree or equivalent in electronic engineering, computer science, mathematics and several years relevant industrial experience should apply, in confidence, to the address below.

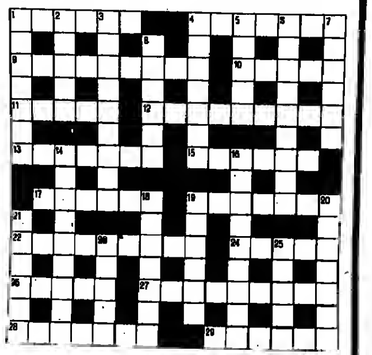
Managing Director, Transaction Security Limited, P.O. Box 72, Barratt House, Chestnut Avenue, Guildford, Surrey GU2 5HJ. Tel: (0483) 503363

CROSSWORD

Prize Crossword No 15

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS, by first post Friday, April 10. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name..... (Miss, Mrs, Ms, Mr)

Address.....

.....

Telephone.....

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed..... Date.....

ACROSS

1. Withdraw to look round the Church with head of diocese (6)
4. Act, maybe, causing unofficial sort of strike (4-3)
9. A travelling hawker, a man taken round the East by a sailor (9)
10. Edible mollusc, yellow, found beside the sea at Boulogne (5)
11. He makes bundles, packing beer in the railways (5)
12. Somerset town's success with study about the worker (9)
13, 15. Preparing to divert trains in times of crisis (7-6)
17, 19. Muscular men filter in disguise among western crews (6-7)
22. Dislikes state with children around one (9)
24. Carouse causes bar to be withdrawn (5)
26. A bo'bin, see, works in reverse (5)
27. One morbidly self-centred CO-1 manage to reform (9)
28. Chests are tender in the Civil Service (7)
29. Story was the first containing inside information (6)

DOWN

1. Old instrument having a bag only (7)
2. About to get something useful for an angler – a basket (5)
3. Going shooting, carrying English pistol, initially (9)
4. Labour with no right, and almost finish up roused (5,2)
5. A silly fellow's thrown up the sponge (5)
6, 7. Arrive at the wild North East and succeed royally (4,2,3,6)
8. Insect gets attention, landing on the judge (6)
14. Recited rapidly and staggered away (6,3)
16. Enrage one, if nature should be nasty (9)
18. Flute-players also disturbed rest (7)
19. A piece of foil is somewhat flexible (6)
20. Married, with records written up – like some wedding-cake? (7)
21. The pub's bill for white wine (6)
23. Find the answer to only about five (5)
25. Express love in the midst of sinful behaviour (5)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of IPC Business Press Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive cash prizes to the value of £10, £5 and £5 following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

Senior Systems Analyst

£10,000 p.a. for the printing industry

BEDFORDSHIRE

Our client is part of a UK multinational company who wish to expand their DP department due to an increase in their workload. They have, therefore, created an additional position in their systems department.

They are situated on the outskirts of Dunstable, next to beautiful countryside. They offer relocation where necessary, pleasant small and friendly working environment, very interesting development work and excellent promotional prospects.

With this position there is a high possibility of overseas travel, to the Far East and South America, for 2-8 weeks per year, installing systems.

If you feel you can match a majority of the following requirements our client would like to meet you.

★ Five years' solid systems experience.
★ Awareness of a variety of computer hardware.
★ Ability to see major projects through from initial investigation to implementation.
★ Printing and Production orientated systems.
★ Good customer/user contact.

The following would be an additional advantage:

★ Knowledge of Banking/Finance/Accounting.
★ IBM background.
★ Hardware/Software Company background.

Please contact TONY HATHERALL to arrange a prompt interview.

Computer Search
01-404 0152
Norwich House, 13 Southampton Place, London WC1A 2AJ

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CLASSIFIED
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DIRECT LINE
01-661 0121

On behalf of clients based in Europe and the U.K. we have the following immediate permanent requirements. Salaries negotiable around figures quoted.

BRUSSELS

Analyst/Programmers (13-15K)
Applications work in a commercial environment, on mainframe DP system (GE level 62/DPS). Ideally candidates will have 2 years' practical knowledge in the areas of DMRV, database and/or TP. IDS are advantageous. Ref. BC2411

Software Support Programmers (15K)
The requirement is within Technical Support being that of the development of on-line systems for a multi-national client. On MVS, CICS with remote RJE facilities. You will need fully experience in a systems programming environment. Ref. BC2452

Analyst/Programmers (13-15K)
Minimum of two years' experience on IBM 4.2n, preferably 4.3x with RPG II compiled with a sophisticated application in a commercial environment. Ref. BC2422

Previous knowledge of Belgium/French/Dutch would be an advantage. Please send applicable CV to Ref. No. on 01-995 0066, or write to:

Fraser Williams (London) Ltd., Recruitment & Training, 125 Victoria Street, London SW1E 6RA.

LONDON & HOME COUNTIES

Senior Programmers (8½-10½K)
To work as a member of a professional project team in an IBM 4331 OS/VS1 installation. Applicants must have at least three years' commercial COBOL experience, preferably on financial systems within a similar installation. Ref. BT2411

Analyst/Programmers Control Systems (7½-10K)
Must have practical experience of engineering control and control systems on mini-computers (DG, HP, etc.) which combined with experience of one of the following structured languages: CORAL, RTL/2, PASCAL. Ref. BT2412

Programmers (6-7K)
Graduates in applied sciences with up to 2 years' commercial experience. Knowledge of a high level language and practical experience are essential. COBOL, HONEYWELL L6 would be desirable. Ref. BT2411

Please telephone 01-831 8961, CDI Technologies Ltd., Thanet House, 78-74 High Holborn, WC1

IT NEVER RAINS IN SOUTHERN U.S.A.

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for major USA companies in the fields of
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located in
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Long-term Contracts for qualified people

Salaries to $60,000 per annum

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JCL RPG 11	Algol	MVS CICS
GMAD	PL1	TSO DOS
		Panvalet
IDS 11 DMIV		
TSS TDS		
GCOS 111 GCOS8		

Please telephone 01-831 8961, CDI Technologies Ltd., Thanet House, 78-74 High Holborn, WC1

Job Opportunities In Australia

Computer Sciences of Australia is the leading supplier of computer services in Australia. The System Services Division provides consulting and systems development services to many major organisations. Because of increasing work demands, we need more well-qualified computer professionals for permanent positions in Sydney, Melbourne and Perth. Specifically, we are looking for people with a degree or other suitable qualifications in the following areas:–

- PROJECT MANAGERS – with several years experience in D.P. and a track record of successfully implementing complete systems.
- DATA BASE SPECIALISTS – experience in data base administration or design using IMS DB/DC, OL/1, IOS or AOABAS.
- ANALYST/PROGRAMMERS – sound background in COBOL and/or PL/1, using on-line and data base techniques. A minimum of 5 years experience is required.

BENEFITS

- Good career opportunities
- Attractive salaries and a comprehensive benefits package
- Technical and management training
- Assistance with relocation

Interviews will be held during late April/early May in London and Nottingham. Please send full details to the address below:–

CSA Computer Sciences of Australia P/L.,
c/o Computer Sciences Corporation (U.K.),
Heathcoat House, 20 Savile Row,
London, W1X 1AE.

(6048) 2606

Senior Systems Analysts/ Systems Analysts

Our client is part of one of the largest and most advanced international engineering groups in Britain, with large, modern manufacturing plants and extensive supporting facilities in the northwest of England. The company has full order books which include very large export contracts for the supply and support of its products in many parts of the world.

As a result of its increasing activities, the company is now seeking a number of Senior Systems Analysts/Systems Analysts to strengthen a team working on the development and improvement of engineering after-sales services.

Applicants should have educational qualifications to HND/Degree standard and must have gained at least two years' working experience in an engineering/commercial environment.

The company operates an IBM 3031 computer running under MVS and supporting DL/I and CICS applications. Familiarity with this type of equipment and software would be an advantage, but proven analysis achievement is more important.

Successful candidates will be based at one of our client's major establishments, located in an attractive part of the northwest countryside but within easy access of major towns, motorways and rail services.

Please write with full details, listing separately any companies to whom your application should not be forwarded. All applications will be treated in confidence.

Mr. D. Bishop,
Image in Industry Limited,
2/3 Gough Square, Fleet Street, London EC4.

(6031)

SMR
Sales & Marketing Recruiters Ltd
Victory House, 29 Regent Street, London W1R 7HB

SALES EXECUTIVES

Just in case you think we are merely the industry's leading supplier of career guidance for salesmen (to say nothing of sales training and market research!), we are currently recruiting candidates for over 100 selling jobs within more than 30 computer companies.

If you are seeking a career rather than just a selling job, contact Alasdair Scott or Alan Williams – we have the experience to understand your needs.

Tel: 01-734 9776

(6004)

ARE YOU SELLING MICROCOMPUTERS?

One of Britain's top 20 companies, already well-established computer-users in six multinational groups, seeks another two successful sales people for its information-systems subsidiary in Middlesex.

The Company recently acquired sole UK marketing rights for a range of Z-80 based business microcomputers with full CP/M software capability as well as viewdata and networking and communications options.

SE and SW Territories Unrestricted Earnings

These positions offer a car, BUPA, expenses paid, four weeks holiday, pension plan and product training. The Company is prepared to discuss assistance with relocation costs. Excellent technical sales support, continuous product development and substantial freedom of action also combine to maximise your success.

Interested applicants should write with full career details to:

Robert G. J. Wood,
SISCO LIMITED,
87 Portsmouth Road, Guildford, Surrey, GU2 5DL.
Tel: Guildford (0483) 34561

WAYCOM LIMITED
MINICOMPUTER DIVISION
requires a
Sales Executive
(With Hardware Engineering Experience)

▶ COMPETITIVE SALARY PLUS COMMISSION ON QUOTA
▶ 2 LITRE CAR ▶ 3 WEEKS HOLIDAY INCREASING TO 4 WEEKS
▶ EXCELLENT WORKING CONDITIONS ▶ GROUND FLOOR OPPORTUNITY

We're a young division of Waycom Limited, part of an established international electronics group, and are seeking a young person (probably aged between 26 and 30) to contribute to the development of our minicomputer division, which already has shown substantial growth in the first year.

If you are able to sell and have sufficient hardware engineering experience (e.g. DEC/DG/CAI) to be able to package our mini-computer hardware with peripherals then this is an ideal opportunity to start at ground floor level to further develop sales and expand our business into the Midlands and North.

Interested in this exciting opportunity to expand your career?
Then contact:
Yvonne Taylor, Personnel Department,
Waycom Limited, Wokingham Road, Bracknell, Berkshire.
Telephone: Bracknell (0344) 24571.

COMPUTER SERVICES DEPARTMENT

PROJECT LEADER (£9,576–£10,731)

An experienced Project Leader is required to take charge of a small team of Analyst Programmers. A wide range of applications are to be developed and supported.

Applicants should be graduates or have relevant professional qualifications (M.B.C.S. or A.M.B.C.S.) with considerable experience of systems analysis and programming. A knowledge of IBM hardware and software would be an advantage. Full training will be given to candidates with previous experience of staff supervision and training.

Further details and application forms may be obtained from the Board of Commissioners, Town Hall & Civic Centre, Sunderland, SR2 7DN, to be returned by 10th April, 1981.

borough of sunderland (6044)

CONTRACT PERMANENT
RELATION
Hexagon House, 43 Maddox Street, London W1V 9TB

SALES BIT

Pre-call preparation – 2

Applying your product to the client's needs

LAST week I talked about personal organisation and the establishment of sales objectives in the context of pre-call preparation. But all the organisation and objectives in the world are of no value if they are not conditioned by an understanding of the client's problem and the capability of one own's product portfolio.

An essential ingredient of selling is the ability to identify a specific need or desire and then apply it to the most appropriate solution within one's product portfolio. This inevitably demands a clear understanding of the potential buyer's situation and the capabilities of one's own company, and calls for a lot of information on both sides of the question.

Client knowledge: Have I carried out sufficient research into this company's size, product and marketplace in order to have a real appreciation of the likely business opportunities which may arise in the context of the product I am selling?

In other words make sure you have the correct names of the company and the person you are visiting. Find out whether the company is part of a larger organisation and whether you already deal with any other related company.

Try to establish the company's financial situation – for example, how many employees does it have? Define the true nature of the company's business and assess the likely areas of requirement. Find out if you are calling on the ultimate decision-maker – what do you know about him?

Your company may have been in contact with this prospect before. If this is the case, look up what proposals were made and for what requirements. Ask your colleagues for any information on this prospect. It would also be useful to know if the company already uses products similar to the ones you are selling. If so, find out the supplier's name.

Product knowledge: Do you really have a complete understanding of your own product portfolio, particularly in those areas most likely to apply to the prospect? Ask yourself what questions you will need to put in order both to appreciate the nature of any requirement and propose the means of satisfying it. Decide which of your products the company is most likely to require, and what are the likely benefits to the prospect. Find out if your company has any existing clients in the same business and which of your products they use. If you do, then will you be authorised to use them as referees? Finally, make sure you have complete details of specification, price and delivery.

There is no limit to the questions that might be asked in each of the four areas of consideration I have defined over the last two weeks. It is up to the individual salesperson to decide what is appropriate to the situation.

Only when this total process has been completed can the salesperson be completely ready to proceed with the sales call itself.

Alan Williams

COURSES

■ TWO courses being run by MicroAPL are oriented towards current and potential APL users. Advanced APL, to be held on May 12-13, covers file handling in detail, workspace-to-workspace communications, input/output concepts for peripheral interfaces, advanced CP/M facilities and major project architecture and security. Beginner's APL, on June 9-10, covers basic computer operation, main CP/M facilities, ABL concepts, elementary intrinsic functions and operators, user-defined functions, system commands and simple project building. Both courses will be at the organiser's offices in Victoria, London and the fee is £150 per delegate. Details from 19 Catherine Place, Victoria, London SW1E 6DX. Tel: 01-834 2687.

■ A GROWING interest in data security in networks and in the techniques of encryption, the main tools of data security, have led the National Physical Laboratory to organise a course. Security in Data Communication, to be held on May 21-22 at the NPL in Middlesex. It is intended for those in banking, commerce and industry who are engaged in processing confidential data through computers and communications. Your company may have been in contact with this prospect before. If this is the case, look up what proposals were made and for what requirements. Ask your colleagues for any information on this prospect. It would also be useful to know if the company already uses products similar to the ones you are selling. If so, find out the supplier's name.

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PUZZLE ANSWER

2 + 5 + 43 + 67 + 89 + 101 = 307.